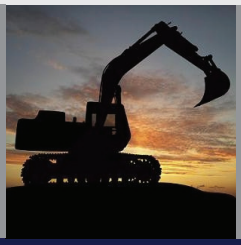
SENSORONIX

ADVANCED MAGNETIC SENSOR TECHNOLOGY

2012 CATALOG

Sensing the...

Speed

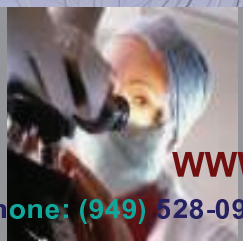
Direction

Position

of Technology...





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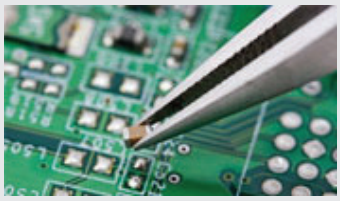
SENSORONIX

ADVANCED MAGNETIC SENSOR TECHNOLOGY

About us

Sensoronix, Inc., is a leading manufacturer of Non-contact Magnetic Sensors. This U.S based company with its headquarters in Irvine, CA, offers a range of standard and customized motion sensor solutions providing precise measurement of Speed, Direction, Position, and Proximity. Sensoronix offers engineering and manufacturing services from prototype to production for low and high volume requirements. Sensoronix has provided quality products for many successful applications and has helped many companies achieve their project objectives with the highest standards of quality and reliability.






All Sensoronix products are custom designed to meet your application requirements.

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Company Information

Sensoronix, Inc., located in Irvine, California, is a custom design and manufacturer of magnetic sensors used for precise measurement of speed, direction, position and proximity. Many leading industries have utilized magnetic sensor technology in their applications. These industries include: Automotive, Biotechnology, Aerospace, Aviation, Computer/ Peripheral, Agriculture and many more. Sensoronix is dedicated to the design and production of high quality and advanced magnetic sensor technology customized for various applications.

Mission Statement

Sensoronix, Inc. is determined to provide the highest quality of customer care, product efficiency, employment growth, and community involvement.

Why Sensoronix?

By utilizing dedicated professionals with nearly two decades of success and experience in magnetic sensor technology, Sensoronix, Inc. has created an advanced manufacturing organization that:

- Has many years of experience in this field and working with different industries, therefore, our engineering team possesses innovative design and consulting capabilities to ensure customer satisfaction.
- Meets the highest standards of quality while offering competitive prices.
- Is a custom design manufacturer for any type of specification with capabilities to produce low and high quantity of magnetic sensors.

Quality and Warranty

Sensoronix, Inc. believes in 100% quality and 100% customer satisfaction. Therefore, every product manufactured at Sensoronix, goes through an extensive testing and approval process in order to ensure the highest standard of quality before reaching our customers. The quality does not end with the products manufactured at sensoronix, Inc. We have gathered a professional team of experts in engineering, quality control, and sales in order to ensure quality customer service to our valued customers.

All products manufactured by sensoronix, Inc. will have the company warranty for products utilized under specified conditions for 18 months after the time of shipment to customer. Any repairs or replacements due to manufacturing defects will be accommodated under the company warranty at no charge. However, defects due to exposure to environments other than specified for that sensor which will yield mistreatment will not be covered under the warranty. Our product management and application team will be available to assist you with details and step by step instructions on how to choose the right specifications for your application needs.

SENSORONIX
ADVANCED MAGNETIC SENSOR TECHNOLOGY

General Specification Capability

Electrical Specifications Range

1. Active Digital Output Sensors: (Hall Effect)

Input voltage: +4.5 to 24 VDC or 5.5 to 36 VDC
Output current (I sink): 20 to 50mA Max
Output Signal: Digital (square Wave) 0 to input voltage or 0 to 5V.
Target: Ferrous material, single tooth or slot up to 48 pitch Gear tooth or magnet as a target.
Airgap: .005" to .120" (.127mm to 3.046mm)
Frequency: 0 to 15KHZ (for speed sensor)
Operating temperature range:
-40° F to 302° F (-40°C to 150°C)

2. Active Linear Output Displacement Sensors: (Hall Effect)

Input voltage: 4.5 to 6 VDC or 5.5 to 36VDC.
Output voltage at 0 Gauss: 2.5V TYP
Linearity: ± 3% full scale
Sensitivity: 1.30 mV/G
Bandwidth: 23KHZ TYP
Target: permanent magnet.
Airgap: .005" to 0.750" (.127mm to 19.036mm)
Operating temperature range:
-40°F to 255°F (-40°C to 125°C)

3. Passive Analog Output Speed Sensors: (VR)

Resistance: 40 to 2000 Ohms
Target: Ferrous material, single tooth to 32 P/ Gear
AirGap: 0.005" to 0.150" (.127mm to 3.808mm)
Speed range: 30 to 1000 Inch/sec
Output voltage (P-P): .100 to 200 Vpp
Operating temperature range:
-40 °F to 302 °F (-40°C to 150°C)

Optional modifications:

1. **Input voltage transient protection**
2. **Severe environment and Automotive Protection**
3. **EMI / EMC protection**

Mechanical Specifications Range

Housing Type:

1. **Smooth**
2. **Threaded w / optional wrench flat head**
3. **Hex head**
4. **Knurled head**
5. **Connector head**
6. **Other (per customer's specification)**

Standard Housing Size:

INCH	*METRIC*
1/4-28, 1/4-40	M12 x 1.25
5/16-24	M16 x 1.5
3/8-24	M18 x 1.5
1/2-20, 1/2-32	M18 x 1.0
5/8-18	M20 x 1.5
3/4-16, 3/4-20	M22 x 1.5

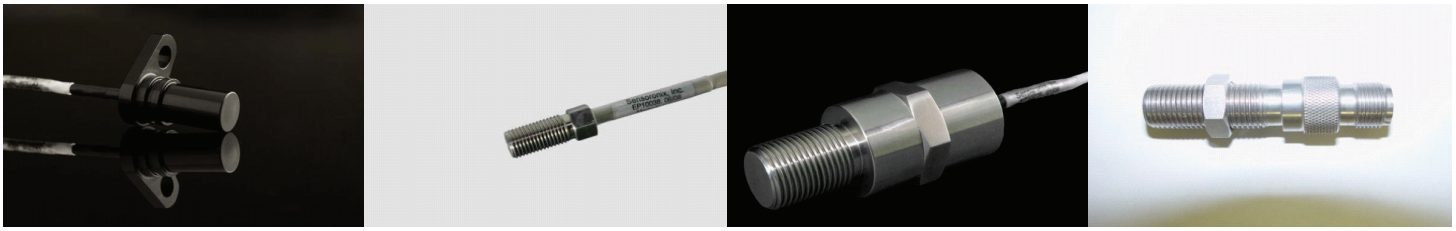
Housing Material:

1. **300 series stainless steel**
2. **Aluminum with or without plating**
3. **Nickel plated, Brass**
4. **Rugged, Thermoplastic**
5. **Other(Per customer's specification)**

Terminal:

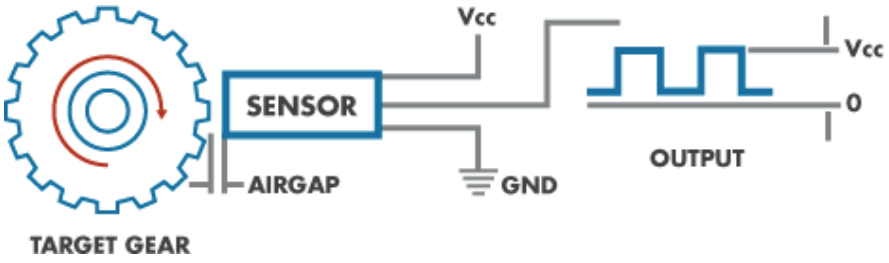
1. **Connector**
   Options: MS3106 series, Amphenol, Deutsch
2. **Lead wire**
   Options: 16 to 28 AWG with PVC, Teflon insulations, and Military types
3. **Cable**
   Options: 16 to 28 AWG with PVC jacket, Teflon Jacket and insulation, and Military types
4. **Lead wire+ Connector**
   Options: 16 To 26 AWG with AMP, Deutsch, Packard connector
5. **Cable + Connector**
   Options: 16 To 28 AWG with AMP, Deutsch, Packard connector

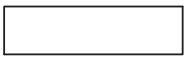
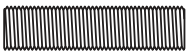
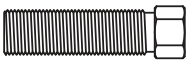
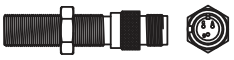
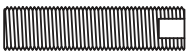
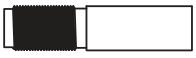
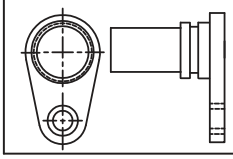
Hall-Effect Zero Speed Sensor (HS)



Non-contact magnetic sensors that measure the distortion of magnetic field created by a ferrous target. Hall-Effect Zero speed sensors provide very precise measurements of movement even at zero speed which makes the Hall-Effect zero speed sensors ideal for speed measurements. Hall-effect zero speed sensors provide digital output with constant amplitude signal regardless of variation of the speed.

Common Applications: Engine control systems, Ignition timing, Transmission speed, Traction control.



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 4 to 32 Gear Pitch.

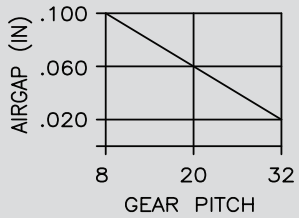
$$P = \frac{N + 2}{OD}$$

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

Frequency: 15 kHZ Max

Output Type: Digital (Squar wave),TT compatible /

Gear Pitch vs. Airgap Graph



Part Number Nomenclature

H S X X X - X X X

- H S — Sensor Type
- X X X — Case Diameter "B"
- X — Case Type "A"
- X X — Special Modifications
- X — Terminal "G"

1/4" (0.250")	2X,	Others	9X
3/8" (0.375")	3X,	M-12	12
15/32"(0.468")	4X,	M-16	16
1/2" (0.500")	5X,	M-18	18
5/8" (0.625")	6X,	M-20	20
3/4" (0.750")	7X,	M-22	22
7/8" (0.875")	8X		

Connector	0
Conn. & Wire	1
Conn. & Cable	2
Lead Wires	3
Cable	4

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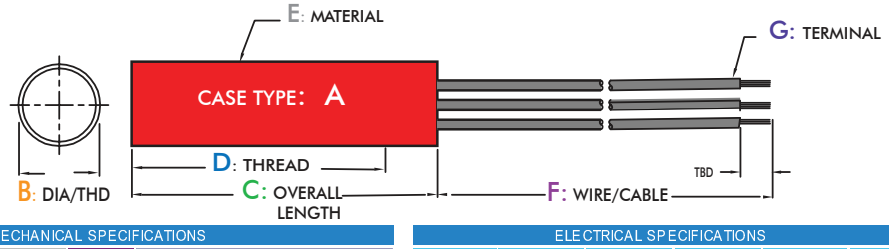
Standard (HS) Products Available

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							ELECTRICAL SPECIFICATIONS						ENVIRONMENT
	A	B	C	D	E	F	G	INPUT Voltage (VDC)	INPUT Current (mA)	V Out High (VDC)	V Out Low (VDC)	OUTPUT Current (mA)	Pull-up Resistor (K Ohm)	TEMPERATURE RANGE ° C
1/4" Diameter Series														
* HS220-410	2	1/4 - 40	1.50	.63	303 S.S.	24 ± .5	22 AWG PVC CABLE	5.5 To 36	15	5	0.4	20 Sink	4.7	-20 To 85
5/16" Diameter Series														
HS130-300	1	5/16 – 24	1.50	1.50	303 S.S.	12 ± 1	26 AWG LEAD WIRE	4.5 To 24	10	V input	0.4	20 Sink	4.7	-25 To 80
HS130-400	1	5/16 – 24	1.50	1.50	303 S.S.	12 ± .5	22 AWG TEF. CABLE	4.5 To 24	10	V input	0.4	20 Sink	4.7	-20 To 150
3/8" Diameter Series														
HS030-300	0	3/8	1.40	-	Alum.	6 ± .25	26 AWG LEAD WIRE	4.5 To 24	10	V input	0.4	15 Sink	2.0	-25 To 90
HS030-400	0	3/8	2.50	-	Alum.	12 ± .5	22 AWG PVC CABLE	4.5 To 24	10	V input	0.4	15 Sink	2.0	-25 To 105
HS230-200	2	3/8 - 24	1.48	1.23	303 S.S.	36 ± 3	CABLE W/ MS CONNECTOR	4.5 To 24	10	V input	0.6	20 Sink	4.7	-20 To 105
HS230-400	2	3/8 - 24	1.48	1.25	303 S.S.	36 ± 3	22 AWG PVC CABLE	4.5 To 24	10	V input	0.4	20 Sink	4.7	-20 To 105
HS230-410	2	3/8 - 24	1.48	1.25	303 S.S.	36 ± 3	22 AWG TEF. CABLE	4.5 To 24	10	V input	0.4	20 Sink	4.7	-20 To 125
* HS230-420	2	3/8 - 24	1.50	1.25	303 S.S.	36 ± 3	22 AWG TEF. CABLE	4.5 To 24	10	V input	0.4	20 Sink	4.7	-20 To 150
* HS230-430	2	3/8 - 24	1.50	1.25	303 S.S.	12 ± .5	28 AWG TEF. CABLE	4.5 To 24	10	V input	0.4	20 Sink	4.7	-20 To 150
* HS230-440	2	3/8 - 24	2.81	2.56	303 S.S.	24 ± .5	22 AWG TEF. CABLE	4.5 To 24	10	V input	0.6	20 Sink	4.7	-40 To 150
HS230-450	2	3/8 - 24	1.50	1.25	303 S.S.	36 ± 3	22 AWG PVC CABLE	4.5 To 24	10	V Input	0.6	25 Sink	Open	-20 To 100
(*)(**) HS230-460	2	3/8 - 24	1.50	1.25	303 S.S.	12 ± .5	22 AWG TEF. CABLE	4.5 To 24	10	V Input	0.6	20 Sink	4.7	-40 To 120
* HS530-200	5	3/8 - 24	2.70	2.25	303 S.S.	36 ± 3	22 AWG PVC CABLE / CONN.	4.5 To 24	10	V input	0.4	20 Sink	Open	-20 To 85
HS530-400	5	3/8 - 24	1.25	-	303 S.S.	36 ± 3	28 AWG TEF. CABLE	4.5 To 24	10	V input	0.4	20 Sink	4.7	-20 To 85
* HS530-410	5	3/8 - 24	2.70	2.25	303 S.S.	72 ± .5	22 AWG TEF. CABLE	4.5 To 24	10	V Input	0.6	20 Sink	4.7	-20 To 125
15/32" Diameter Series														
HS140-300	1	15/32 - 32	1.00	1.00	303 S.S.	12 ± .5	26 AWG LEAD WIRE	4.5 To 24	10	V input	0.6	20 Sink	4.7	-20 To 105
HS140-400	1	15/32 - 32	1.00	1.00	303 S.S.	12 ± .5	22 AWG PVC CABLE	4.5 To 24	10	V input	0.6	20 Sink	4.7	-20 To 105
7/16" Diameter Series														
HS140-410	1	7/16 - 20	1.50	1.50	303 S.S.	24 ± 1	22 AWG PVC CABLE	4.5 To 24	10	V input	0.6	25 Sink	Open	-40 To 105
1/2" Diameter Series														
HS050-300	0	1/2	1.11	-	Alum.	8 ± .25	26 AWG PVC LEAD WIRE	4.5 To 18	10	V input	0.4	15 Sink	2.0	-25 To 100
HS050-400	0	1/2	1.00	-	303 S.S.	36 ± 1	22 AWG PVC CABLE	4.5 To 18	10	V input	0.4	25 Sink	2.0	-40 To 105
(*)(**) HS150-200	1	1/2 - 20	2.56	2.56	303 S.S.	12 ± .5	22 AWG TEF. CABLE W/ M12 x 1 CONN.	4.5 To 24	10	V input	0.6	20 Sink	4.7	-40 To 150
HS150-400	1	1/2 - 32	1.25	1.25	303 S.S.	9 ± 1	22 AWG PVC CABLE	4.5 To 18	10	V input	0.4	25 Sink	2.0	-40 To 105
** HS150-410	1	1/2 - 20	2.56	2.56	303 S.S.	24 ± .5	22 AWG TEF. CABLE	4.5 To 24	10	V input	0.6	20 Sink	4.7	-40 To 150
HS150-420	1	1/2 - 32	1.25	1.25	303 S.S.	120 ± 3	22 AWG PVC CABLE	4.5 To 24	10	V input	0.6	25 Sink	2.0	-40 To 105
* HS750-400	7	35/64	1.37	-	Plastic	12 ± 1	22 AWG TEF. CABLE	4.5 To 24	10	V input	0.4	25 Sink	4.7	-40 To 125
5/8" Diameter Series														
* HS160-120	1	5/8 - 18	6.00	6.00	303 S.S.	4 ± .5	18 AWG, W/ CONN.	4.5 To 24	12	V input	0.6	20 Sink	4.7	-25 To 125
* HS160-400	1	5/8 - 18	6.00	6.00	303 S.S.	120 ± 1	22 AWG PVC CABLE	4.5 To 24	10	V input	0.4	25 Sink	4.7	-25 To 125
HS360-210	3	5/8 - 18	2.50	2.00	303 S.S.	9	CABLE W/ TURK CONNECTOR	4.5 To 24	9	V input	0.6	25 Sink	4.7	-40 To 100
HS360-220	3	5/8 - 18	2.72	2.14	303 S.S.	72 ± 2	CABLE W/ PACKARD CONNECTOR	4.5 To 24	10	V input	0.6	25 Sink	4.7	-40 To 125
HS360-400	3	5/8 - 18	2.72	2.14	303 S.S.	72 ± 2	22 AWG PVC CABLE	4.5 To 24	10	V input	0.4	25 Sink	4.7	-25 To 125
HS360-410	3	5/8 - 18	2.50	2.00	303 S.S.	36 ± 1	22 AWG TEF. CABLE	4.5 To 24	10	V input	0.6	20 Sink	4.7	-25 To 125
HS460-000	4	5/8 - 18	3.27	2.14	303 S.S.	-	MS3106 CONNECTOR	4.5 To 24	10	V input	0.6	20 Sink	4.7	-25 To 125
HS460-010	4	5/8 - 18	5.13	4.00	303 S.S.	-	MS3106 CONNECTOR	4.5 To 24	10	V input	0.6	20 Sink	4.7	-25 To 125
HS460-020	4	5/8 - 18	2.33	1.20	303 S.S.	-	MS3106 CONNECTOR	4.5 To 24	10	V input	0.6	20 Sink	4.7	-25 To 125
HS460-050	4	5/8 - 18	3.27	2.14	303 S.S.	-	MS CONNECTOR	4.5 To 24	10	V input	0.6	25 Sink	4.7	-25 To 125
HS460-060	4	5/8 - 18	3.27	2.14	303 S.S.	-	MS CONNECTOR	5.5 To 36	9	5	0.6	25 Sink	4.7	-20 To 125
HS560-400	5	5/8 - 18	2.50	2.17	303 S.S.	480 ± 12	22 AWG PVC CABLE	4.5 To 24	10	V input	0.6	20 Sink	4.7	-25 To 125
* HS560-410	5	5/8 - 18	3.00	2.63	303 S.S.	72 ± 2	22 AWG PVC CABLE	4.5 To 24	10	V input	0.6	25 Sink	4.7	-25 To 125
3/4" Diameter Series								5.5 To 24						
HS070-400	0	3/4	3.00	3.00	303 S.S.	300 ± 1	22 AWG PVC CABLE		10	V input	0.6	20 Sink	4.7	-40 To 105
HS270-200	2	3/4 - 16	4.00	3.37	303 S.S.	12 ± 1	22 AWG PVC CABLE, W/ CONN.	5.5 To 36	12	V input	0.4	20 Sink	4.7	-40 To 105
HS270-300	2	3/4 - 16	2.34	2.00	Alum.	3.5 ± .5	18 AWG PVC LEAD WIRES	5.5 To 24	10	V input	0.6	20 Sink	4.7	-40 To 105
HS270-400	2	3/4 - 16	2.34	2.00	303 S.S.	120 ± 1	22 AWG PVC CABLE	4.5 To 24	10	V input	0.6	25 Sink	Open	-40 To 105
HS270-410	2	3/4 - 16	4.00	3.66	Alum.	72 ± 2	22 AWG PVC CABLE	4.5 To 24	10	V input	0.6	20 Sink	4.7	-40 To 105
HS270-420	2	3/4 - 16	2.34	2.00	Alum.	36 ± 1	22 AWG PVC CABLE	4.5 To 24	10	V input	0.6	20 Sink	4.7	-40 To 105
HS270-430	2	3/4 - 16	2.30	1.87	Alum.	8 ± 1	22 AWG PVC CABLE	4.5 To 24	10	V input	0.4	20 Sink	4.7	-20 To 100
HS270-440	2	3/4 - 16	3.00	2.66	Alum.	36 ± 1	22 AWG PVC CABLE	5.5 To 24	10	V input	0.4	50 Sink	4.7	-40 To 105
HS270-450	2	3/4 - 16	3.00	2.57	Alum.	240 ± 1	22 AWG PVC CABLE	5.5 To 24	75	V input	0.4	150 Sink	4.7	-40 To 105
* HS470-020	4	3/4 - 16	3.12	2.00	303 S.S.	-	M12 x 1, 4 PINS CONNECTOR	4.5 To 24	10	V input	0.6	20 Sink	4.7	-40 To 105
* HS570-200	5	3/4 - 16	4.50	4.10	303 S.S.	12 ± 1	CABLE W/ MS CONNECTOR	5.5 To 36	9	5	0.6	20 Sink	4.7	-40 To 105
* HS570-210	5	3/4 - 16	4.50	4.10	303 S.S.	6 ± .5	TEF. CABLE W/ M12 x 1 CONNECTOR	5.5 To 36	15	V input	0.4	50 Sink	4.7	-40 To 107
* HS570-220	5	3/4 - 16	3.00	2.63	303 S.S.	6 ± .5	TEF. CABLE W/ M12 x 1 CONNECTOR	5.5 To 36	15	V input	0.4	50 Sink	4.7	-40 To 107
M12 Diameter Series														
HS312-300	3	M12 x 1	2.56	1.80	303 S.S.	12 ± .5	26 AWG PVC LEAD WIRE	4.5 To 24	10	V input	0.6	20 Sink	4.7	-40 To 100
HS312-400	3	M12 x 1	2.56	1.80	303 S.S.	24 ± 1	22 AWG PVC CABLE	4.5 To 24	10	V input	0.6	20 Sink	4.7	-40 To 100
* HS312-420	3	M12 x 1	3.06	2.00	303 S.S.	39.4 ± 1	22 AWG TEF. CABLE	4.5 To 24	10	V input	0.6	20 Sink	4.7	-40 To 125
M18 Diameter Series														
* HS218-400	2	M18 x 1.5	2.60	.98	303 S.S.	48 ± 1	22 AWG TEF. CABLE	4.5 To 24	10	V input	0.6	20 Sink	4.7	-30 To 140
* HS218-410	2	M18 x 1.5	2.36	2.05	303 S.S.	48 ± 1	22 AWG TEF. CABLE	4.5 To 24	15	V input	0.4	50 Source	4.7	-40 To 140
* HS218-420	2	M18 x 1.5	2.80	2.05	303 S.S.	39 ± .5	22 AWG TEF. CABLE W/ DEUTSCH CONN.	5.5 To 36	15	V input	0.4	50 Source	Open	-40 To 125

NOTE: ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED
* SEALED FRONT
** EMC Protection Included

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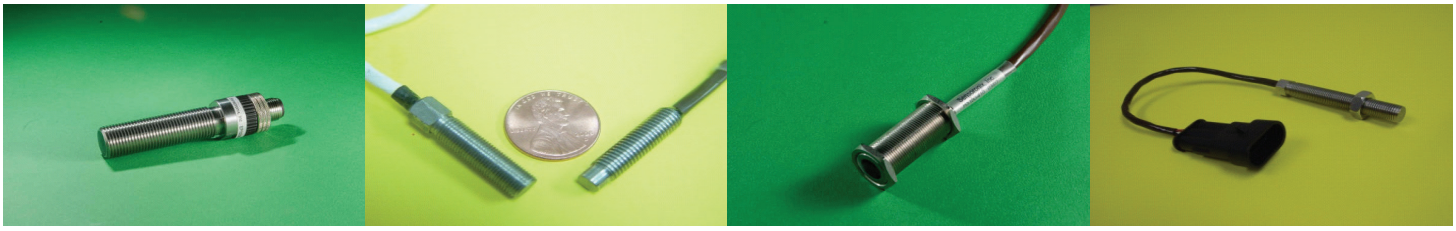
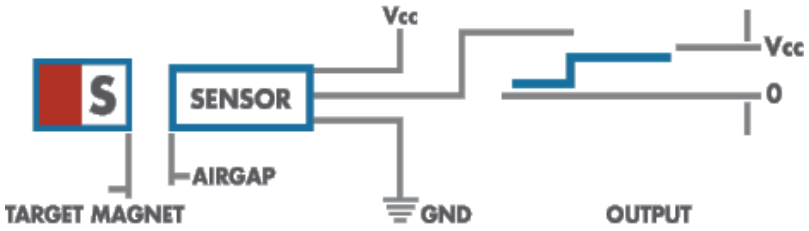
Hall-Effect Proximity Switch Sensor (HP)



Non-contact magnetic sensor proximity switch produces a digital output. The output produced by Hall-Effect Proximity Switch sensor switches between logic low (operate point) and logic high (release point) with presence and absence of a magnet as a target. The built-in hysteresis circuitry allows clean switching of the output even in the presence of external mechanical vibration and electrical noise.

Common Applications: Automation, valve actuator, valve position switch.



Target: Magnet
Frequency : 0-100 KHZ Max
Output Type: Digital (Square Wave) , TTL Compatible

Magnetic Characteristics

Parameters	TYP "Gauss"
Magnetic Operating Point	25 -180
Magnetic Release Point	5 -140
Magnetic Hysteresis	7 - 40

Please contact Sensoronix for the exact Magnetic Characteristics for each standard part number.

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

Part Number Nomenclature

H P X X X - X X X

Sensor Type

Case Type "A"

Case Diameter "B"

1/4" (0.250")	2X,	Others	9X
3/8" (0.375")	3X,	M-12	12
15/32"(0.468")	4X,	M-16	16
1/2" (0.500")	5X,	M-18	18
5/8" (0.625")	6X,	M-20	20
3/4" (0.750")	7X,	M-22	22
7/8" (0.875")	8X		

Special Modifications

Terminal "G"

Connector	0
Conn. & Wire	1
Conn. & Cable	2
Lead Wires	3
Cable	4

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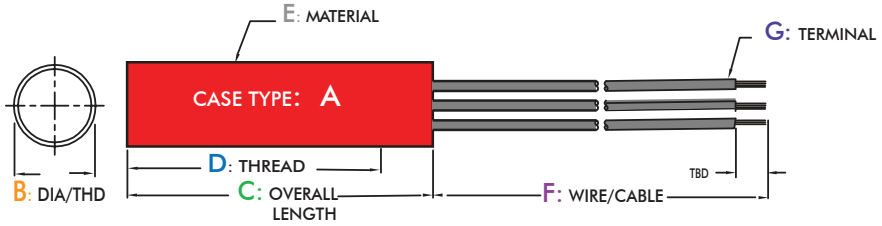
Standard (HP) Products Available

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							ELECTRICAL SPECIFICATIONS						ENVIRONMENT
		A	B	C	D	E	F	G	INPUT Voltage (VDC)	INPUT Current (mA)	V Out High (VDC)	V Out Low (VDC)	OUTPUT Current (mA)	Pull-up Resistor (K Ohm)	TEMPERATURE RANGE ° C
	1/4" Diameter Series														
*	HP620-300	6	1/4 - 28	1.00	.85	303 S.S.	48 ± .5	20 AWG TEF. WIRE	4.5 To 24	5	V input	0.4	30 Sink	Open	-40 To 150
*	HP620-400	6	1/4 - 28	1.00	.85	303 S.S.	120 ± 3	22 AWG PVC CABLE	4.5 To 24	5	V input	0.4	30 Sink	Open	-20 To 100
	5/16" Diameter Series														
	HP130-400	1	5/16 - 24	1.50	1.50	303 S.S.	12 ± 1	22 AWG CABLE	4.5 To 24	10	V input	0.4	15 Sink	4.7	-20 To 105
***	HP130-420	1	5/16 - 24	1.50	1.50	303 S.S.	12 ± 1	22 AWG PVC CABLE	6.0 To 24	13	V input	0.4	20 Sink	4.7	-20 To 85
	3/8" Diameter Series														
*	HP230-400	2	3/8 - 24	1.50	1.25	303 S.S.	48 ± 3	22 AWG CABLE	4.5 To 24	14	V input	0.4	45 Sink	4.7	-40 To 125
*	HP230-410	2	3/8 - 24	1.50	1.25	303 S.S.	12 ± .5	22 AWG PVC CABLE	4.5 To 24	14	V input	0.4	45 Sink	4.7	-20 To 100
*	HP230-420	2	3/8 - 24	1.50	1.25	303 S.S.	36 ± 3	22 AWG TEF. CABLE	4.5 To 24	14	V input	0.4	45 Sink	4.7	-40 To 150
*	HP230-430	2	3/8 - 24	1.00	.75	303 S.S.	18 ± .5	22 AWG PVC CABLE	4.5 To 24	10	V input	0.4	20 Sink	4.7	-40 To 100
	15/32" Diameter Series														
	HP140-400	1	15/32 - 32	1.00	1.00	303 S.S.	6 ± .25	22 AWG CABLE	5.5 To 36	9	5.0	0.4	30 Sink	4.7	-40 To 125
	HP142-400	1	15/32 - 32	1.00	1.00	303 S.S.	39.5 ± .25	22 AWG CABLE	4.5 To 24	9	V input	0.4	30 Sink	Open	-40 To 125
	1/2" Diameter Series														
(**)(***)	HP050-400	0	1/2	1.10	1.10	303 S.S.	12 ± 1	22 AWG PVC CABLE	6.0 To 30	20	V input	0.4	20 Sink	4.7	-55 To 85
	HP150-100	1	1/2 - 20	1.00	1.00	303 S.S.	12 ± .5	18 AWG WIRE W/ CONNECTOR	4.5 To 25	9	V input	0.4	30 Source	4.7	-20 To 100
	HP150-110	1	1/2 - 20	8.00	8.00	303 S.S.	12 ± .5	18 AWG WIRE W/ CONNECTOR	4.5 To 25	9	V input	0.4	30 Source	4.7	-20 To 100
	HP150-200	1	1/2 - 20	1.00	1.00	303 S.S.	40 ± 2	CABLE W/ CONNECTOR	4.5 To 24	9	V input	0.4	30 Sink	Open	-20 To 100
	HP150-400	1	1/2 - 20	1.00	1.00	303 S.S.	40 ± 2	22 AWG CABLE	4.5 To 24	9	V input	0.4	30 Sink	Open	-40 To 125
	5/8" Diameter Series														
	HP360-200	3	5/8 - 18	2.50	2.00	303 S.S.	3	CABLE W/ DEUTCH CONNECTOR	4.5 To 24	10	V input	0.4	25 Sink	2.2	-25 To 125
	HP360-400	3	5/8 - 18	2.72	2.14	303 S.S.	72 ± 2	22 AWG CABLE	4.5 To 24	10	V input	0.4	25 Sink	2.2	-25 To 125
	HP360-410	3	5/8 - 18	2.50	2.00	303 S.S.	36 ± 2	22 AWG TEF. CABLE	4.5 To 24	10	V input	0.4	25 Sink	4.7	-25 To 125
	HP360-420	3	5/8 - 18	2.50	2.00	303 S.S.	24 ± 1	22 AWG PVC CABLE	4.5 To 24	10	V input	0.4	25 Sink	4.7	-25 To 125
	HP460-000	4	5/8 - 18	5.70	4.50	303 S.S.	-	MS3106 CONNECTOR	5.0 To 30	10	V input	0.4	50 Sink	4.7	-40 To 125
	HP460-010	4	5/8 - 18	4.17	2.50	303 S.S.	-	MS3106 CONNECTOR	5.0 To 30	10	V input	0.4	50 Sink	4.7	-40 To 125
	HP460-020	4	5/8 - 18	3.40	1.70	303 S.S.	-	MS3106 CONNECTOR	5.0 To 30	10	V input	0.4	50 Sink	4.7	-40 To 125
(*)(**)	HP460-030	4	5/8 - 18	3.00	2.14	303 S.S.	-	M12 x 1, 4 PINS CONNECTOR ATTACHED	5.5 To 36	10	V input	0.4	20 Sink	4.7	-40 To 100
*	HP460-040	4	5/8 - 18	3.00	2.14	303 S.S.	-	M12 x 1, 4 PINS CONNECTOR ATTACHED	5.5 To 36	10	V input	0.4	50 Source	4.7	-40 To 100
	3/4" Diameter Series														
	HP270-400	2	3/4 - 16	2.30	1.87	Alum.	72 ± 3	20 AWG TEF. CABLE	4.5 To 24	10	V input	0.4	50 Sink	Open	-40 To 125
	HP270-410	2	3/4 - 16	2.30	1.87	Alum.	40 ± 2	20 AWG TEF. CABLE	5.5 To 36	10	5.0	0.4	50 Sink	4.7	-40 To 125
(*)(****)	HP270-420	2	3/4 - 16	2.30	1.87	Alum.	8 ± 1	22 AWG PVC CABLE	4.5 To 24	9	V input	0.4	20 Sink	4.7	-20 To 100
	HP270-430	2	3/4 - 16	2.34	2.00	Alum.	10 ± .5	22 AWG PVC CABLE	4.5 To 24	10	V input	0.4	50 Sink	4.7	-40 To 105
	M12 Diameter Series														
	HP112-400	1	M12 x .75	.95	.85	Alum.	98 ± 3	22 AWG CABLE	4.5 To 24	10	V input	0.4	25 Sink	Open	-40 To 125

NOTE: ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED
* SEALED FRONT
** EMC Protection Included
*** Omnipolar, HIGH SENSITIVE UNIT (contact sensoronix for detailed specs)
**** NORTH POLE SENSING

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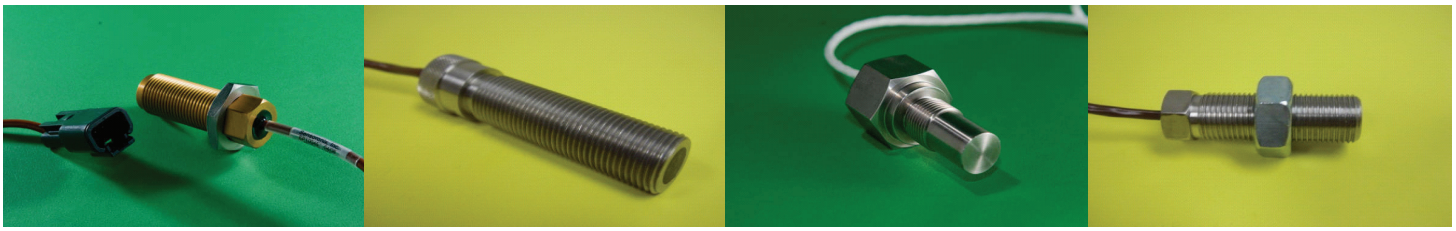
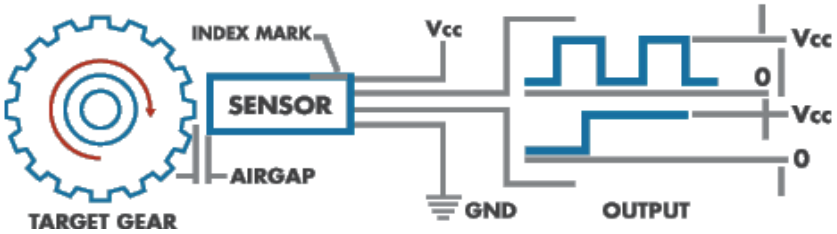
Hall-Effect Speed & Direction Sensor (HD)



Non-contact magnetic sensors that measure the distortion of magnetic fields and thus provide precise measurements of speed and direction. Output #1 is digital square wave and measures the speed of target wheel or gear. Output #2 is a DC level that when the target wheel rotates clockwise, the output signal # 2 produces logic High, and when the target wheel rotates counter clockwise, the output signal # 2 produces logic low. Output signal #1 will be 50% duty cycle with proper alignment of sensor and target gear.

Common Applications: Dynamometers, Traction control.



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 o Min 4 to 32 Gear Pitch.

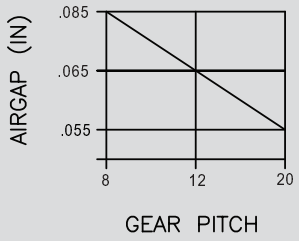
$$P = \frac{N + 2}{OD}$$

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

Frequency: 15 kHZ Max

Output Type: Digital (Square wave),TT compatible

Airgap vs. Gear Pitch Graph



PROTECTIONS

Supply overvoltage: 40 VDC
Reverse polarity: -50 V reverse transient
Load Dump: 60 V

Part Number Nomenclature

H D X X X - X X X

Sensor Type

Case Type "A"

Case Diameter "B"

1/4" (0.250")	2X,	Others	9X
3/8" (0.375")	3X,	M-12	12
15/32"(0.468")	4X,	M-16	16
1/2" (0.500")	5X,	M-18	18
5/8" (0.625")	6X,	M-20	20
3/4" (0.750")	7X,	M-22	22
7/8" (0.875")	8X		

Special Modifications

Terminal "G"

Connector	0
Conn. & Wire	1
Conn. & Cable	2
Lead Wires	3
Cable	4

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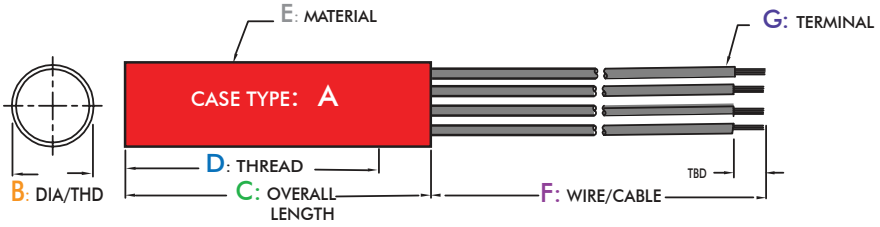
Standard (HD) Products Available

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							ELECTRICAL SPECIFICATIONS						ENVIRONMENT
	A	B	C	D	E	F	G	INPUT Voltage (VDC)	INPUT Current (mA)	V Out High (VDC)	V Out Low (VDC)	OUTPUT Current (mA)	Pull-up Resistor (K Ohm)	TEMPERATURE RANGE ° C
5/8" Diameter Series														
HD160-400	1	5/8 - 18	2.50	2.50	303 S.S.	12 ± 1	22 AWG TEF. CABLE	5.0 To 18	15	V input	0.4	20 Sink	4.7	-40 To 125
HD360-400	3	5/8 - 18	2.72	2.14	303 S.S.	36 ± 3	22 AWG TEF. CABLE	5.5 To 36	15	5.0	0.6	20 Sink	4.7	-40 To 125
* HD460-000	4	5/8 - 18	3.00	2.14	303 S.S.	-	4 PIN CONNECTOR, M12 X1 CONN.	5.0 To 24	20	V input	0.6	20 Sink	4.7	-40 To 85
3/4" Diameter Series														
HD070-400	0	3/4	2.00	2.00	303 S.S.	36 ± 3	22 AWG TEF. CABLE	5.0 To 18	15	V input	0.6	20 Sink	4.7	-25 To 100
HD270-400	2	3/4 - 16	2.30	1.87	Alum.	72 ± 3	22 AWG TEF. CABLE	5.0 To 36	15	5.0	0.6	20 Sink	4.7	-40 To 125
M18 Diameter Series														
* HD218-400	2	M18 x 1.5	2.80	2.05	303 S.S.	31.5 ± .5	22 AWG TEF. CABLE	5.5 To 40	15	5.0	0.6	50 Sink	4.7	-40 To 125
* HD218-410	2	M18 x 1.5	2.36	2.05	303 S.S.	31.5 ± .5	22 AWG TEF. CABLE	5.5 To 40	15	5.0	0.6	50 Sink	4.7	-40 To 125
HD518-400	5	M18 x 1.5	2.14	1.89	303 S.S.	120 ± 3	22 AWG TEF. CABLE	5.5 To 36	15	5.0	0.6	20 Sink	4.7	-40 To 125
HD518-410	5	M18 x 1.5	2.14	1.89	303 S.S.	24 ± 1	22 AWG TEF. CABLE	5.0 To 18	15	V input	0.6	20 Sink	4.7	-40 To 125
* HD518-420	5	M18 x 1	2.00	1.78	303 S.S.	12 ± .5	22 AWG TEF. CABLE	5.5 To 36	20	5.0	0.6	20 Sink	4.7	-40 To 125
M20 Diameter Series														
* HD120-400	1	M20 x 1.5	2.05	2.05	303 S.S.	39 ± .5	22 AWG TEF. CABLE	5.5 To 36	20	5.0	0.6	20 Sink	4.7	-20 To 100

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

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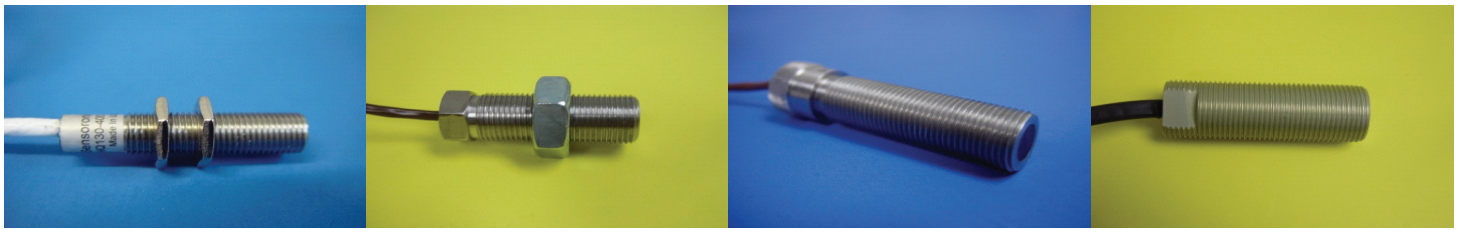
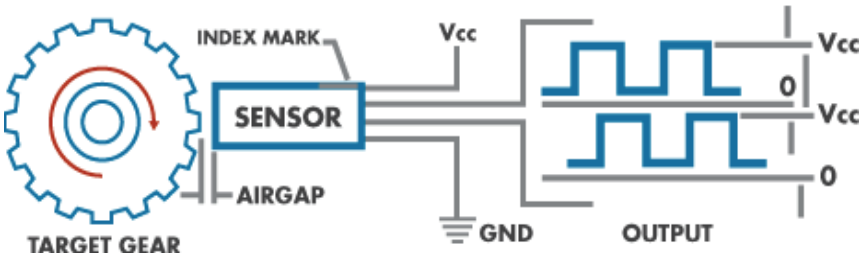
Hall-Effect Quadrature Sensor (HQ)



Non-contact magnetic sensors that measure the distortion of magnetic field created by a ferrous target. Quadrature sensors provide two 90° out of phase digital outputs to record speed and direction. When the target wheel or gear is rotating clockwise, the output signal # 1 leads output signal # 2, and when the target is rotating counter clockwise, the output signal # 2 leads output signal # 1. Both output signals will be 50% duty cycle with proper alignment of sensor and target gear.

Common Applications: Dynamometers, Traction control.



Target: Ferrous Material Gear Tooth with range of Min 4 to 32 Gear Pitch.

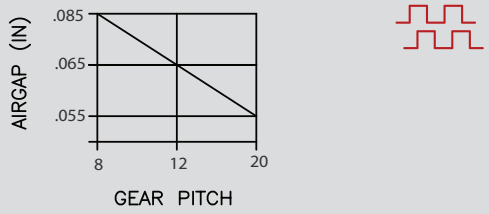
$$P = \frac{N + 2}{OD}$$

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

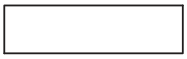
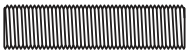
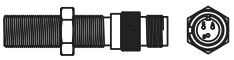
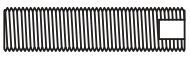
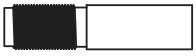
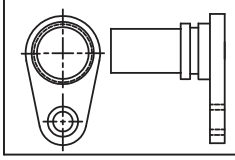
Frequency: 15 kHZ Max

Output Type: Digital (Squar wave), TT compatible /

Quadrature Phasing: 90 ° +/- 20 %



Gear Pitch vs. Airgap Graph

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

Part Number Nomenclature

H Q X X X - X X X

- H Q — Sensor Type
- X X X — Case Type "A" / Case Diameter "B"

1/4" (0.250")	2X,	Others	9X
3/8" (0.375")	3X,	M-12	12
15/32"(0.468")	4X,	M-16	16
1/2" (0.500")	5X,	M-18	18
5/8" (0.625")	6X,	M-20	20
3/4" (0.750")	7X,	M-22	22
7/8" (0.875")	8X		

- X X — Special Modifications / Terminal "G"

Connector	0
Conn. & Wire	1
Conn. & Cable	2
Lead Wires	3
Cable	4

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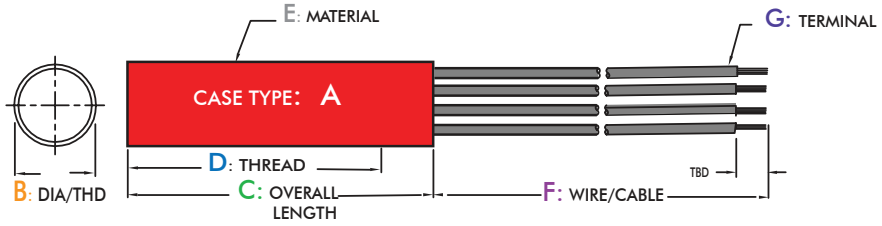
Standard (HQ) Products Available

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							ELECTRICAL SPECIFICATIONS						ENVIRONMENT
	A	B	C	D	E	F	G	INPUT Voltage (VDC)	INPUT Current (mA)	V Out High (VDC)	V Out Low (VDC)	OUTPUT Current (mA)	Pull-up Resistor (K Ohm)	TEMPERATURE RANGE ° C
3/8" Diameter Series														
HQ130-200	1	3/8 - 24	1.50	1.50	303 S.S.	18 ± .5	22 AWG TEF. CABLE W/ M12 x 1 CONN.	5.5 To 36	12	V input	0.6	20 Sink	Open	-25 To 125
HQ130-400	1	3/8 - 24	1.70	1.25	303 S.S.	12 ± 1	22 AWG TEF. CABLE	4.5 To 24	12	V input	0.6	20 Sink	4.7	-25 To 100
HQ230-400	2	3/8 - 24	1.50	1.25	303 S.S.	12 ± 1	22 AWG TEF. CABLE	4.5 To 24	12	V input	0.6	20 Sink	4.7	-25 To 125
* HQ230-410	2	3/8 - 24	1.50	1.25	303 S.S.	12 ± 1	22 AWG TEF. CABLE	4.5 To 24	12	V input	0.6	20 Sink	4.7	-25 To 125
* HQ230-420	2	3/8 - 24	1.50	1.25	303 S.S.	36 ± 1	22 AWG TEF. CABLE	4.5 To 24	12	V input	0.6	20 Sink	Open	-20 To 150
5/8" Diameter Series														
HQ160-400	1	5/8 - 18	1.00	1.00	303 S.S.	72 ± 3	22 AWG TEF. CABLE	4.5 To 24	12	V input	0.6	20 Sink	4.7	-25 To 100
HQ360-400	3	5/8 - 18	2.72	2.14	303 S.S.	120 ± 3	22 AWG TEF. CABLE	4.5 To 24	12	V input	0.6	20 Sink	4.7	-25 To 100
HQ560-400	5	5/8 - 18	2.37	2.37	Alum.	12 ± .25	22 AWG TEF. CABLE	4.5 To 24	12	V input	0.6	20 Sink	4.7	-25 To 125
HQ560-410	5	5/8 - 18	2.37	2.37	303 S.S.	180 ± 3	22 AWG TEF. CABLE	4.5 To 24	12	V input	0.6	20 Sink	4.7	-25 To 100
3/4" Diameter Series														
HQ070-300	0	3/4	2.00	-	303 S.S.	12 ± .25	24 AWG LEAD WIRE	4.5 To 24	12	V input	0.6	20 Sink	4.7	-40 To 100
HQ270-400	2	3/4 - 16	2.30	1.87	Alum.	72 ± 3	22 AWG TEF. CABLE	4.5 To 24	12	V input	0.6	20 Sink	4.7	-40 To 100
M10 Diameter Series														
* HQ110-400	1	M10 x 1	2.81	2.81	303 S.S.	24 ± .5	22 AWG TEF. CABLE	4.5 To 24	12	V input	0.6	20 Sink	4.7	-40 To 150
M12 Diameter Series														
* HQ412-000	4	M12 x 1	5.06	4.00	303 S.S.	-	M12 x 1 CONNECTOR	4.5 To 24	12	V input	0.6	20 Sink	4.7	-25 To 85
M16 Diameter Series														
HQ516-400	5	M16 x 1	2.14	1.67	303 S.S.	36 ± 3	22 AWG TEF. CABLE	4.5 To 24	12	V input	0.6	20 Sink	4.7	-25 To 100
M18 Diameter Series														
* HQ518-200	5	M18 x 1.0	2.00	1.75	303 S.S.	6 ± 1	22 AWG TEF. CABLE & CONN.	5.0 To 36	12	V input	0.6	20 Sink	Open	-25 To 100
HQ518-400	5	M18 x 1.5	2.14	1.89	303 S.S.	36 ± 3	22 AWG TEF. CABLE	4.5 To 24	12	V input	0.6	20 Sink	4.7	-25 To 100
HQ518-410	5	M18 x 1.5	2.14	1.89	303 S.S.	12 ± .25	22 AWG TEF. CABLE	5.5 To 36	12	5.0	0.6	30 Source	4.7	-25 To 125
* HQ518-420	5	M18 x 1.0	2.00	1.75	303 S.S.	6 ± 1	22 AWG TEF. CABLE	5.0 To 36	12	V input	0.6	20 Sink	Open	-25 To 125

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

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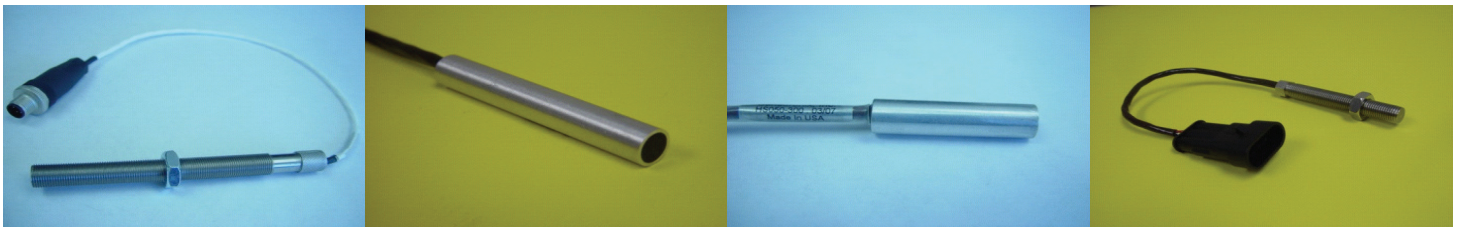
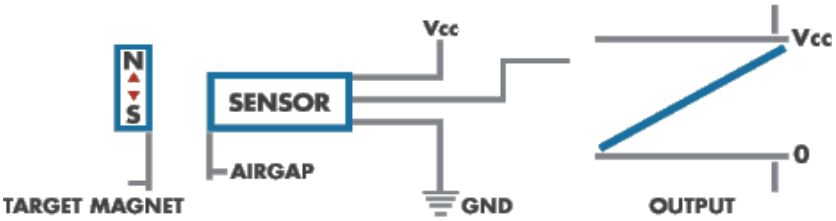
Hall-Effect Displacement Sensor W/ Linear Output (HL)



Non- contact magnetic sensors that are designed to respond to a wide range of positive or negative magnetic fields and can sense relatively small changes in a magnetic field. By having magnet as a target, this unit produces a Ratiometric Rail-To-Rail linear output. It also has an internal amplifier to boost the output to a higher level. These sensors are ideal for applications such as magnetic flux measurement, displacement, and linear output rotary measurement.

Common Applications: Magnetic Flux measurement, Displacement, Linear output rotary measurement.



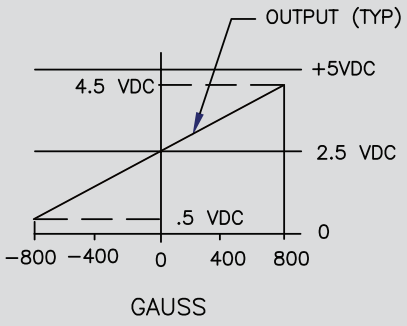
CASE TYPES	DESCRIPTION	A
	SMOOTH	0
	ALL THREAD	1
	HEX HEAD	2
	KNURL HEAD	3
	CONNECTOR HEAD	4
	WRENCH FLAT HEAD	5
	SMOOTH / THREAD	6
	WITH FLANGE	7

Target: Magnet

Output Type: Ratiometric Analog (linear)

Input Voltagae: 5 VDC (unless otherwise specified)

Output vs. Gauss Graph



Part Number Nomenclature

H L X X X - X X X

Sensor Type

Case Type "A"

Case Diameter "B"

1/4" (0.250")	2X,	Others	9X
3/8" (0.375")	3X,	M-12	12
15/32"(0.468")	4X,	M-16	16
1/2" (0.500")	5X,	M-18	18
5/8" (0.625")	6X,	M-20	20
3/4" (0.750")	7X,	M-22	22
7/8" (0.875")	8X		

Special Modifications

Terminal "G"

Connector	0
Conn. & Wire	1
Conn. & Cable	2
Lead Wires	3
Cable	4

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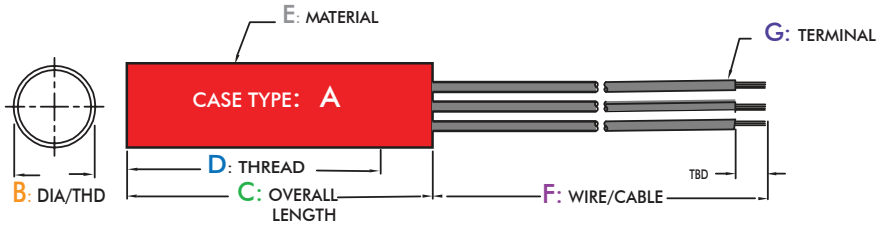
Standard (HL) Products Available

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							ELECTRICAL SPECIFICATIONS						ENVIRONMENT
	A	B	C	D	E	F	G	INPUT Voltage (VDC)	INPUT Current (mA)	V Out @ 0 G 5 V Input	Sensitivity (mV/G)	OUTPUT Current (mA)	Linearity % of Span MAX	TEMPERATURE RANGE ° C
3/8" Diameter Series														
HL030-400	0	3/8	1.40	-	Alum.	24 ± .5	22 AWG PVC CABLE	4.5 To 10.5	9	2.5 ± .175	2.5 ± .1	1.5	-1.5	-40 To 100
1/2" Diameter Series														
HL050-400	0	1/2	1.00	-	303 S.S.	36 ± 1	22 AWG PVC CABLE	4.5 To 10.5	9	2.5 ± .175	2.5 ± .1	1.5	-1.5	-40 To 100
5/16" Diameter Series														
HL130-400	1	5/16 – 24	1.50	1.50	303 S.S.	12 ± 1	22 AWG TEF. CABLE	4.5 To 10.5	9	2.5 ± .175	2.5 ± .1	1.5	-1.5	-40 To 125
M12 Diameter Series														
HL112-400	1	M12 x .75	.95	.95	Alum.	98 ± 3	22 AWG PVC CABLE	4.5 To 10.5	9	2.5 ± .175	2.5 ± .1	1.5	-1.5	-40 To 100
M18 Diameter Series														
HL108-200	1	M8 x 1	1.50	1.50	303 S.S.	31.5	22 AWG PVC CABLE W/ MOLEX CONN.	4.5 To 10.5	9	2.5 ± .175	2.5 ± .1	1.5	-1.5	-40 To 100

NOTE: ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED
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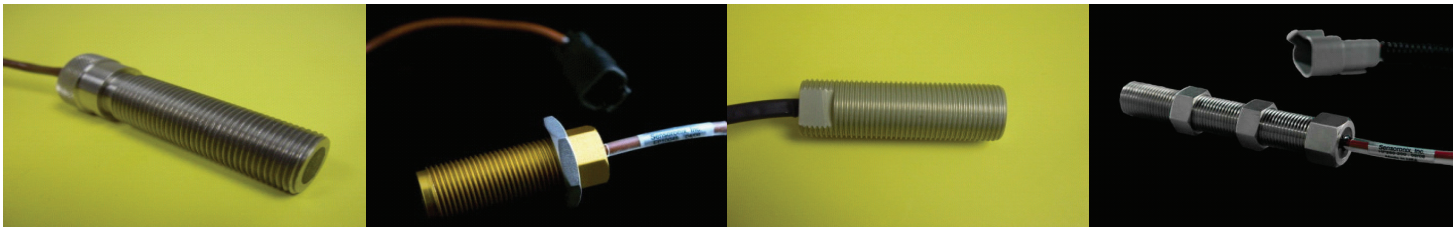
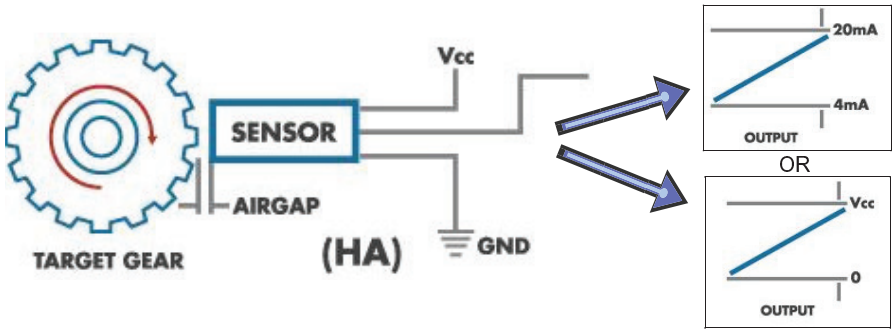
Hall-Effect Speed Sensor W/ Linear Output (HA)



Non-contact linear speed magnetic sensors that uses Hall effect technology to measure the velocity of a rotating object. This sensor is a complex device with signal conditioning that is powered and provides a 4 - 20 mA or a 0 - 10 VDC linear output for velocity measurement.

Common Applications: Wind velocity meter measurement, Radar speed measurement, Linear output rotary measurement.



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 4 to 32 Gear Pitch.

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

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

Frequency: 15 KHZ Max

Output Type: Analog (Linear) Output Speed Sensor

PROTECTIONS

Short circuit: Lead to Lead

Supply overvoltage: 40 VDC

Reverse polarity: -50 V reverse transient.

Load Dump: 60 V

Part Number Nomenclature

HA X X X - X X X

Sensor Type

Case Type "A"

Case Diameter "B"

1/4" (0.250")	2X,	Others	9X
3/8" (0.375")	3X,	M-12	12
15/32"(0.468")	4X,	M-16	16
1/2" (0.500")	5X,	M-18	18
5/8" (0.625")	6X,	M-20	20
3/4" (0.750")	7X,	M-22	22
7/8" (0.875")	8X		

Special Modifications

Output: 0 - 10 VDC	10
Output: 4 - 20 mA	20

Terminal "G"

Connector	0
Conn. & Wire	1
Conn. & Cable	2
Lead Wires	3
Cable	4

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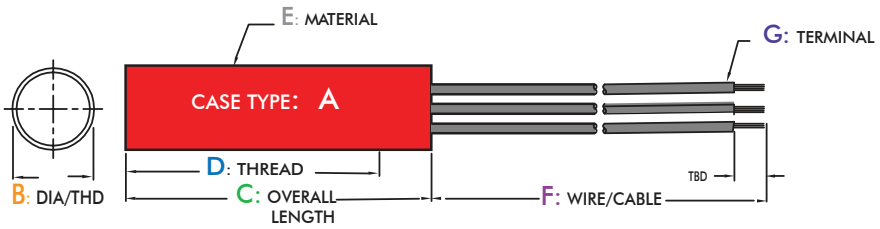
Standard (HA) Products Available

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							ELECTRICAL SPECIFICATIONS						ENVIRONMENT
	A	B	C	D	E	F	G	INPUT Voltage (VDC)	INPUT Current (mA)	OUTPUT Range	OUTPUT Current (mA)	Frequency Range (Hz)	Sensitivity (mV/Hz)	TEMPERATURE RANGE ° C
5/8" Diameter Series														
HA260-410	2	5/8 - 18	3.31	3.00	303 S.S.	120 ± 3	22 AWG PVC CABLE	24	35	0 – 10 VDC	10	0 To 2500	50	0 To 85
HA360-410	3	5/8 - 18	2.72	2.14	303 S.S.	72 ± 3	22 AWG PVC CABLE	10 to 24	26	0 – 10 VDC	10	0 To 500	50	0 To 85
HA260-420	2	5/8 - 18	3.30	3.00	Alum.	120 ± 3	22 AWG PVC CABLE	24	26	4 – 20 mA	10	0 To 83	.8	0 To 85
HA261-420	2	5/8 - 18	3.31	3.00	303 S.S.	396 ± 3	22 AWG PVC CABLE	24	26	4 – 20 mA	10	0 To 4300	.8	0 To 85
HA360-420	3	5/8 - 18	2.72	2.14	303 S.S.	72 ± 3	22 AWG PVC CABLE	24	35	4 – 20 mA	10	0 To 500	.8	0 To 85
3/4" Diameter Series														
HA270-410	2	3/4 - 16	2.34	2.00	Alum.	72 ± 3	22 AWG PVC CABLE	24	26	0 – 10 VDC	10	0 To 200	50	0 To 70
HA270-420	2	3/4 - 16	2.34	2.00	Alum.	72 ± 3	22 AWG PVC CABLE	24	26	4 – 20 mA	10	0 To 1000	.8	0 To 70
HA271-420	2	3/4 - 16	2.34	2.00	Alum.	120 ± 3	22 AWG PVC CABLE	24	26	4 – 20 mA	10	0 To 50	.8	0 To 70
M18 Diameter Series														
* HA118-420	1	M18 x 1.5	3.31	3.13	303 S.S.	80 ± 3	22 AWG PVC CABLE	24	26	4 – 20 mA	10	0 To 50	.8	0 To 70
M22 Diameter Series														
* HA222-220	2	M22 x 1.5	3.31	3.00	303 S.S.	118 ± .5	22 AWG TEF. CABLE W/ DEUTCH CONN.	24	35	4 – 20 mA	10	0 To 133	.8	-20 To 95

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

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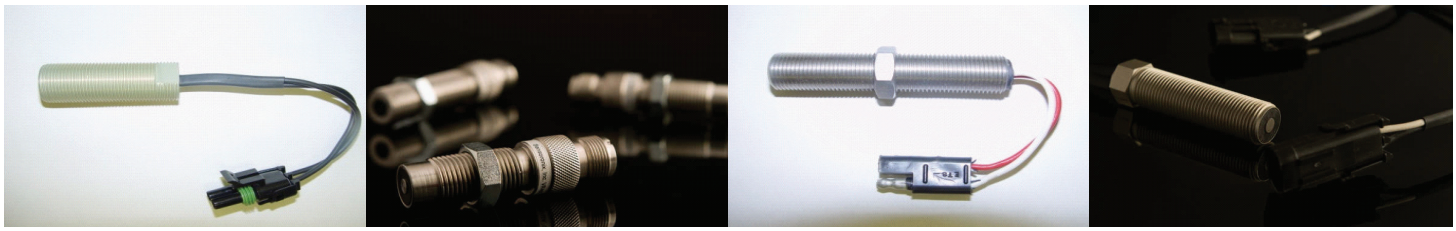
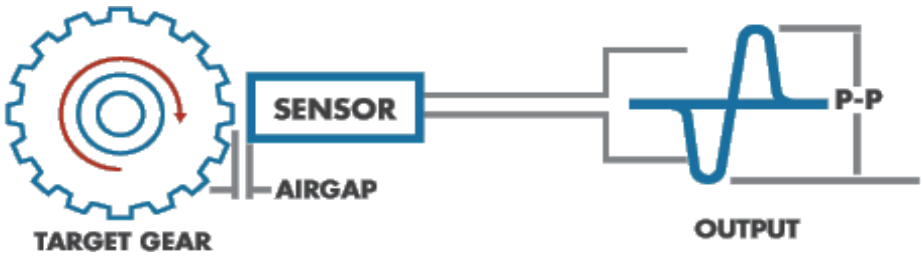
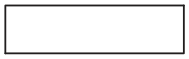
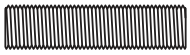
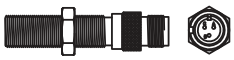
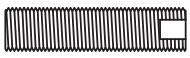
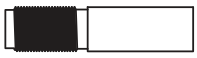
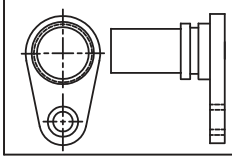
Variable Reluctance Speed Sensor (VR)



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)

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

0 to Peak voltage = Peak to Peak x 0.5

RMS = Peak to Peak x 0.35

Part Number Nomenclature

V R X X X - X X X

Sensor Type

Case Type "A"

Case Diameter "B"

1/4" (0.250")	2X,	Others	9X
3/8" (0.375")	3X,	M-12	12
15/32"(0.468")	4X,	M-16	16
1/2" (0.500")	5X,	M-18	18
5/8" (0.625")	6X,	M-20	20
3/4" (0.750")	7X,	M-22	22
7/8" (0.875")	8X		

Special Modifications

Terminal "G"

Connector	0
Conn. & Wire	1
Conn. & Cable	2
Lead Wires	3
Cable	4

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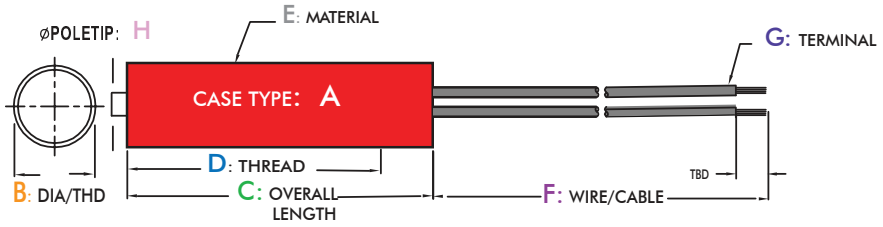
Standard (VR) Products Available

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.	ENVIRONMENT
	A	B	C	D	E	F	G	H	COIL RESISTANCE (Ohm)	TEMPERATURE RANGE ° C
3/8" Diameter Series										
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
1/2" Diameter Series										
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
5/8" Diameter Series										
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
3/4" Diameter Series										
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
M12 Diameter Series										
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
M16 Diameter Series										
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
M18 Diameter Series										
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
M20 Diameter Series										
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
M22 Diameter Series										
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

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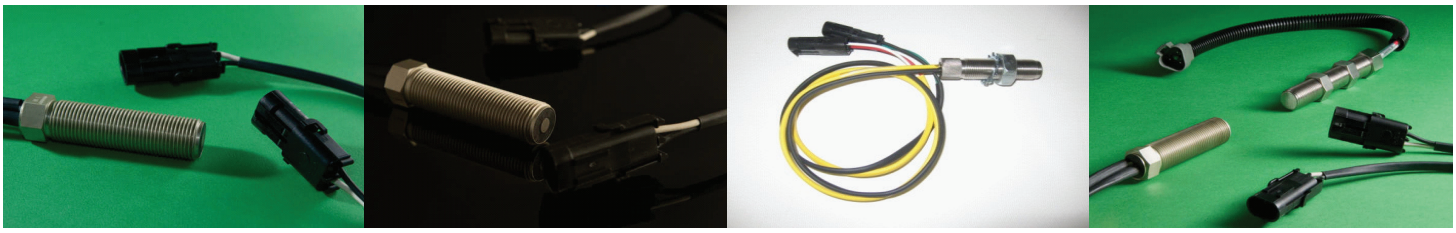
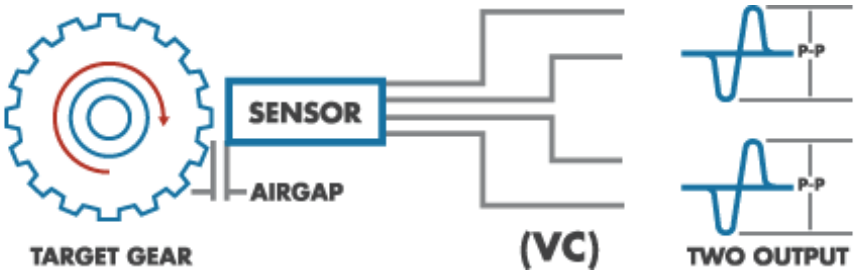
Variable Reluctance Speed Sensor W/ Complimentary Outputs (VC)



Non-contact magnetic sensors that measure the collapse of magnetic field due to the interruption by a ferrous gear tooth. These sensors provide two analog signal outputs (sine wave) that does not require an outside power source. This sensor 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.



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

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

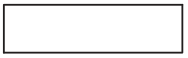
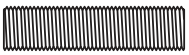
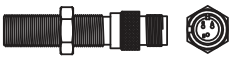
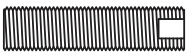
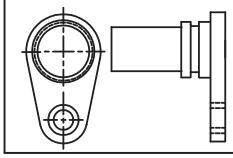
P = Gear Pitch
N = Num. of Teeth
OD = Outside Diameter

Output Type: Dual Outputs: Analog (Sine Wave)

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

0 to Peak voltage = Peak to Peak x 0.5

RMS = Peak to Peak x 0.35

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

Part Number Nomenclature

V C X X X - X X X

Sensor Type

Case Type "A"

Case Diameter "B"

1/4" (0.250")	2X,	Others	9X
3/8" (0.375")	3X,	M-12	12
15/32"(0.468")	4X,	M-16	16
1/2" (0.500")	5X,	M-18	18
5/8" (0.625")	6X,	M-20	20
3/4" (0.750")	7X,	M-22	22
7/8" (0.875")	8X		

Special Modifications

Terminal "G"

Connector	0
Conn. & Wire	1
Conn. & Cable	2
Lead Wires	3
Cable	4

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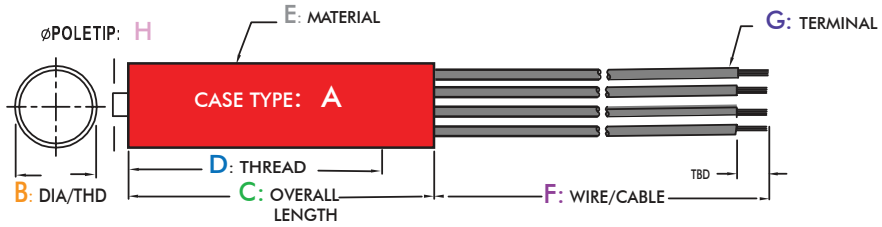
Standard (VC) Products Available

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.	ENVIRONMENT
	A	B	C	D	E	F	G	H	COIL RESISTANCE (Ohm)	TEMPERATURE RANGE ° C
5/8" Diameter Series										
VC160-100	1	5/8 – 18	3.06	3.06	303 S.S.	325 ± .25	20 AWG TEF. LEAD WIRES / CONN.	.188	180 ± 20%	-40 to 105
VC260-100	2	5/8 – 18	3.31	3.00	303 S.S.	16 ± 1	16 AWG SXL LEAD WIRES / CONN	.187	500	-65 To 105
3/4" Diameter Series										
VC370-100	3	3/4 - 16	3.00	2.44	303 S.S.	30 ± 1.5	18 AWG LEAD WIRES W/ PACKARD CONN.	.187	850 - 1220	-40 To 125
VC570 -300	5	3/4 – 16	2.64	2.14	303 S.S.	13 ± 1	18 AWG SXL LEAD WIRES	.187	180 ± 20%	-40 to 105
M18 Diameter Series										
VC218-100	2	M18 x 1.0	3.70	3.40	303 S.S.	16 ± 1	16 AWG SXL LEAD WIRES / CONN.	.187	500	-65 To 105

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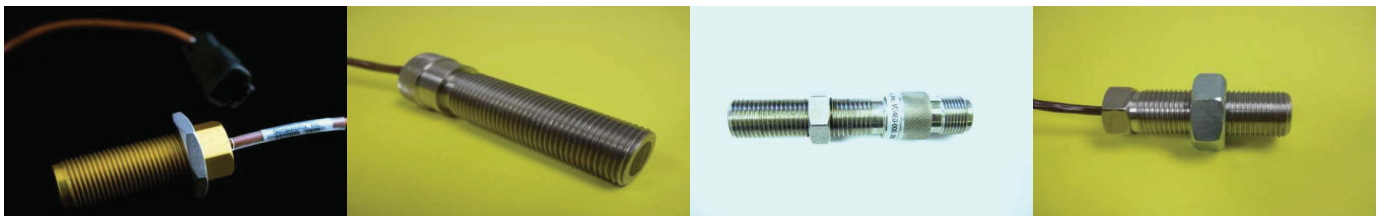
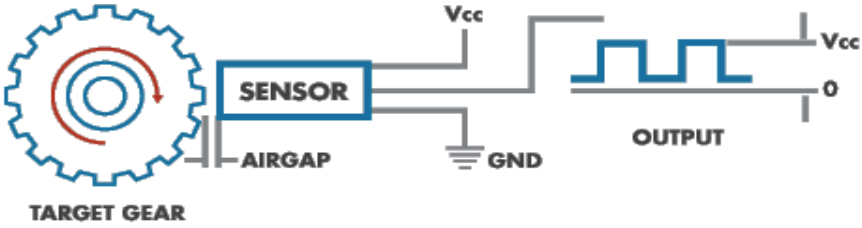
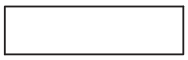
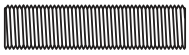
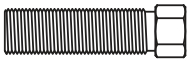
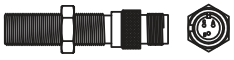
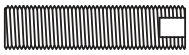
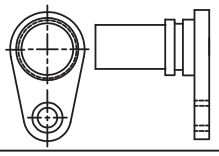
Variable Reluctance Speed Sensor W/ Digital Output (VD)



Due to the active solid state signal conditioning integral with this variable reluctance speed sensor, it converts a sine wave signal output to produce a digital square wave signal with constant amplitude regardless of variations in speed.

Common Applications: Flowmeter measurement, Transmission speed, Wheel speed.



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 4 to 32 Gear Pitch.

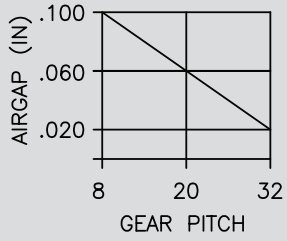
$$P = \frac{N + 2}{OD}$$

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

Frequency: 15 kHZ Max

Output Type: Digital (Squar wave),TT compatible /

Gear Pitch vs. Airgap Graph



Part Number Nomenclature

VD X X X - X X X

Sensor Type: VD

Case Type "A": X

Case Diameter "B": X X X

1/4" (0.250")	2X,	Others	9X
3/8" (0.375")	3X,	M-12	12
15/32"(0.468")	4X,	M-16	16
1/2" (0.500")	5X,	M-18	18
5/8" (0.625")	6X,	M-20	20
3/4" (0.750")	7X,	M-22	22
7/8" (0.875")	8X		

Terminal "G": X

Connector	0
Conn. & Wire	1
Conn. & Cable	2
Lead Wires	3
Cable	4

Special Modifications: X X

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Standard (VD) Products Available

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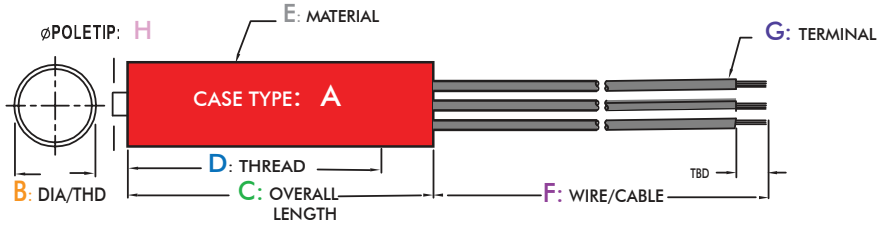
All Sensoronix products are custom designed to meet your exact specification requirements.



Products P/N	MECHANICAL SPECIFICATIONS								ELECTRICAL SPECIFICATIONS						ENVIRONMENT
	A	B	C	D	E	F	G	H	INPUT Voltage (VDC)	INPUT Current (mA)	V Out High (VDC)	V Out Low (VDC)	OUTPUT Current (mA)	Pull-up Resistor (K Ohm)	TEMPERATURE RANGE ° C
3/4" Diameter Series															
VD270-400	2	3/4 - 16	3.34	3.00	303 S.S.	120 ± 1	22 AWG SHIELDED CABLE	.093	5.0 To 25	10	V input	0.4	20	2.0	-25 To 80
5/8" Diameter Series															
VD360-400	3	5/8 - 18	2.72	2.14	303 S.S.	72 ± 2	22 AWG SHIELDED CABLE	.093	5.0 To 25	10	V input	0.4	20	2.0	-40 To 125
VD460-000	4	5/8 - 18	3.00	1.88	303 S.S.	-	MS3106 CONNECTOR	.093	5.0 To 25	10	V input	0.4	20	2.0	-25 To 80

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

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Contact us

General Inquiries:

Our customer service is ready to assist you with your questions and inquires.

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Email :info@sensoronix.com

Sales Inquiries:

Our customer service and sales departments are ready to assist you with your questions and inquires (Monday - Friday 7:00am - 4:00pm PST).

Tel : **(949) 528-0906**
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Sensoronix Headquarters

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