

SENSORONIX

ADVANCED MAGNETIC SENSOR TECHNOLOGY

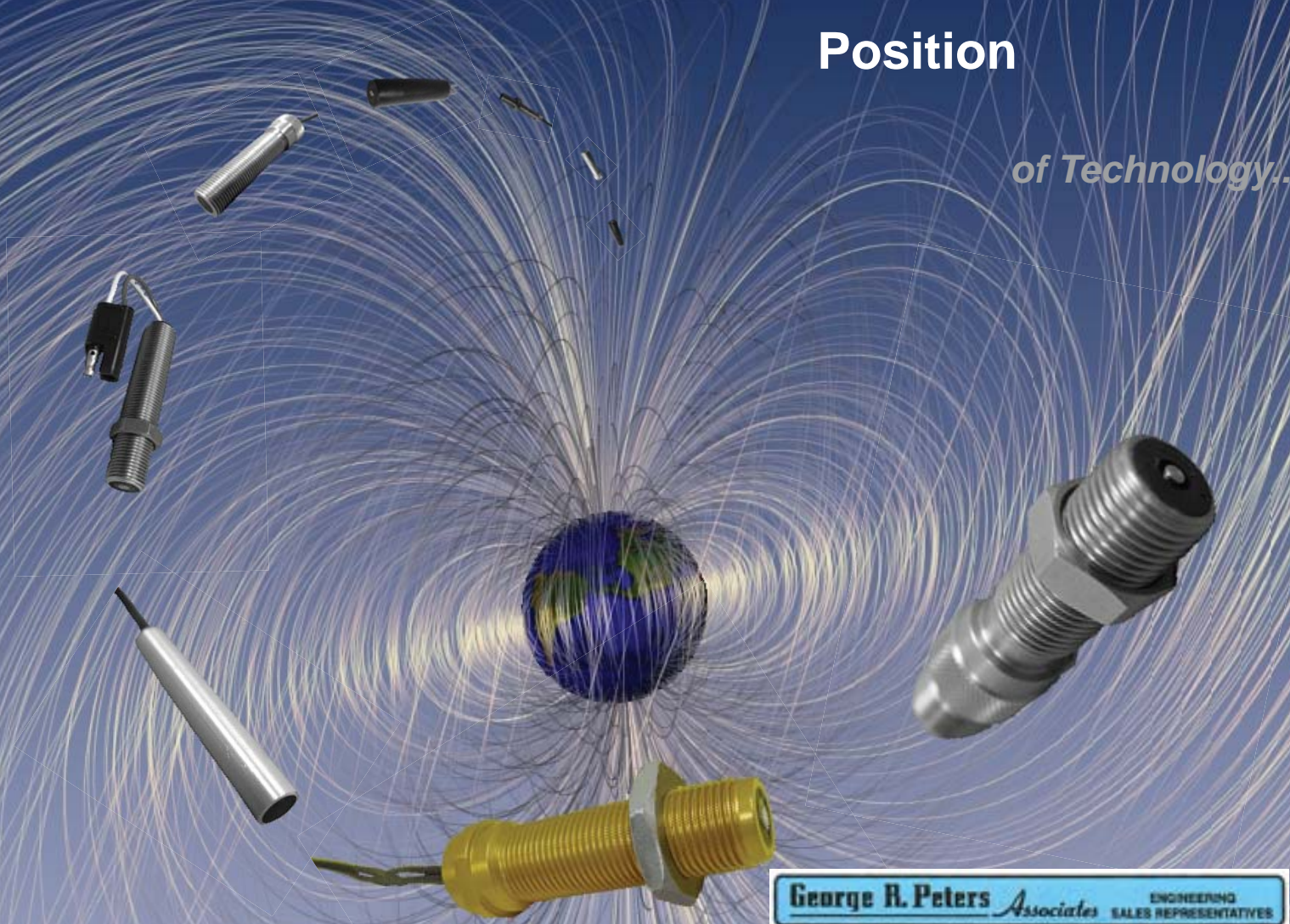
Sensing the...

Speed

Direction

Position

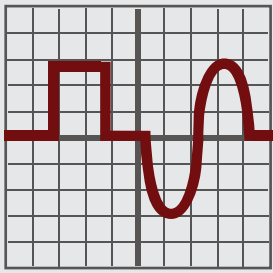
of Technology...



George R. Peters *Associates* ENGINEERING SALES REPRESENTATIVES

650 E. Big Beaver • Suite C • Troy, MI 48083
(248) 524-2211 • Fax (248) 524-1758
www.grpeters.com

WWW.SENSORONIX.COM



SENSORONIX

ADVANCED MAGNETIC SENSOR TECHNOLOGY

Product Categories

Speed Sensors

Active Digital Output

- Hall Effect Zero Speed Sensor (HS)
- Hall Effect Speed and Direction Sensor (HD)
- Hall Effect Quadrature Sensor (HQ)
- Hall Effect Speed Limit Switch Sensor (HW)
- Variable Reluctance Speed Sensor With Digital Output (VD)

Active Linear Output

- Hall Effect Speed Sensor With Linear 4-20 mA Output (HL)
- Hall Effect Speed Sensor With Linear DC Voltage Output (HL)

Passive Analog Output

- Variable Reluctance Speed Sensor (VR)
- Variable Reluctance Speed Sensor With Complimentary (Dual) Output (VC)

Hall Effect Position Sensors

Active Digital Output

- Hall Effect Proximity Switch Sensor (HP)

Active Linear Output

- Hall Effect Displacement Sensor (HL)

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

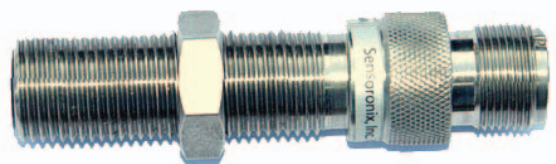
Please contact Sensoronix at:

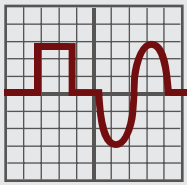
Tel (714)665-6666

Fax (714)665-6667

sales@sensoronix.com

www.sensoronix.com





SENSORONIX

ADVANCED MAGNETIC SENSOR TECHNOLOGY

Company Information

Sensoronix, Inc., located in Tustin, 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.

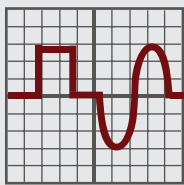
List of Products:

1. Hall Effect Zero Speed Sensor
2. Hall Effect Speed Sensor W/ Linear 4-20 mA Output
3. Hall Effect Speed Sensor W/ Linear DC Voltage Output
4. Hall Effect Speed Limit Switch Sensor
5. Hall Effect Speed and Direction Sensor
6. Hall Effect Quadrature Sensor
7. Variable Reluctance Speed Sensor (VR)
8. Variable Relucatanace Sensor W/ Digital Output
9. Variable Reluctance Sensor W/ Dual Output
10. Hall Effect Displacement Sensor W/ Linear Output
11. Hall Effect Proximity Switch Sensor

JAN 2007

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

Sensoronix, Inc. Tel: 714-665-6666 . Fax: 714-665-6667 . Email: Sales@Sensoronix.com . www.Sensoronix.com



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:

<u>INCH</u>	<u>METRIC</u>
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:

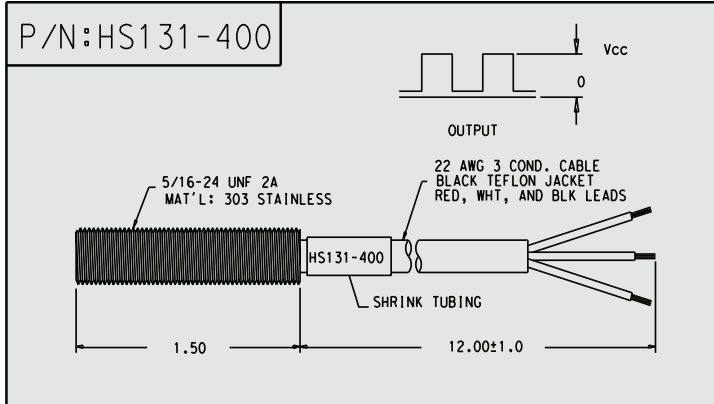
1. Connector
Options: MS3106 series, Amphenol, Deutsch
2. Lead wire
Options: 16 to 28 AWG with PVC, Teflon insulations, and Military types
3. Cable
Options: 16 to 28 AWG with PVC jacket, Teflon Jacket and insulation, and Military types
4. Lead wire+ Connector
Options: 16 To 26 AWG with AMP, Deutsch,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

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.



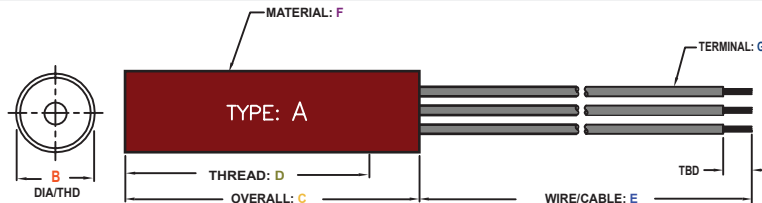
HS Product Sample: P/N: HS131-400




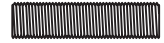
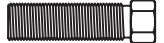



PARAMETER	Symbol	MIN	TYP	MAX	UNIT
SUPPLY VOLTAGE	(Vcc)	4.5	-	24	V
SUPPLY CURRENT	(Icc)	-	8	10	mA
OUTPUT CURRENT	(Isink)	-	-	25	mA
OUTPUT VOLTAGE	High (V out H)	4	-	24	V
OUTPUT VOLTAGE	Low (V out L)	100	-	600	mV
SPEED FREQUENCY	(F)	0	-	15	KHZ
TARGET	(T)	4	-	30	PITCH
AIRGAP	(AG)	.005	-	.100	INCH
OPERATING TEMP. RANGE	(TO)	-20	-	150	°C
OUTPUT RISE TIME	(Tr)	-	-	1	µS
OUTPUT FALL TIME	(Tf)	-	-	1	µS
HUMIDITY, STEADY STATE	(RH)	-	-	95	%
OUTPUT DUTY CYCLE	(D out)	35	50	65	%
DIELECTRIC STRENGTH	(DS)	-	-	150	VRMS
VIBRATION	10-2KHZ (V)	-	-	15	G

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.



P/N	A	B	C	D	E	F	G
HS030-300	0	Ø.375	1.40	-	6 ± .25	ALUM	26 AWG LEAD WIRES
HS050-300	0	Ø.500	1.11	-	8 ± .25	ALUM	26 AWG LEAD WIRES
HS030-400	0	Ø.375	2.50	-	12 ± .5	ALUM	22 AWG, PVC CABLE
HS050-400	0	Ø.500	1.00	-	36 ± 1	303 S.S	22 AWG, PVC CABLE
HS150-400	1	1/2-32	1.25	-	9 ± 1	303 S.S	22 AWG, PVC CABLE
*** HS160-400	1	5/8-18	6.00	-	120 ± 1	303 S.S	22 AWG, PVC CABLE
*** HS160-120	1	5/8-18	6.00	-	4 ± .5	303 S.S	18 AWG, DEUTCH CONN.
HS230-400	2	3/8-24	1.48	1.25	36 ± 3	303 S.S	22 AWG, PVC CABLE
HS230-410	2	3/8-24	1.48	1.25	36 ± 3	303 S.S	22 AWG, TEFZEL CABLE
*** HS230-420	2	3/8-24	1.48	1.25	36 ± 3	303 S.S	22 AWG, TEFZEL CABLE
* HS270-400	2	3/4-16	2.34	2.00	120 ± 1	303 S.S	22 AWG, PVC CABLE
HS360-400	3	5/8-18	2.72	2.14	72 ± 2	303 S.S	22 AWG, PVC CABLE
HS460-000	4	5/8-18	3.27	2.14	-	303 S.S	MS3106 CONNECTOR
HS460-010	4	5/8-18	5.13	4.00	-	303 S.S	MS3106 CONNECTOR
HS460-020	4	5/8-18	2.33	1.20	-	303 S.S	MS3106 CONNECTOR

CASE TYPE	DISCRPTION	A
	SMOOTH	0
	ALL THREAD	1
	HEX HEAD	2
	KNURL HEAD	3
	CONNECTOR HEAD	4
	WRENCH FLAT HEAD	5

NOTE: ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED.

* : WITHOUT INTERNAL PULL-UP RESISTOR (OPEN OUTPUT)

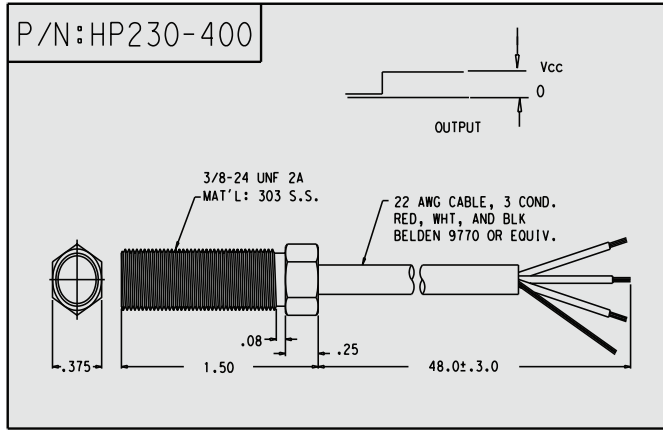
*** : SEALED FRONT

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.



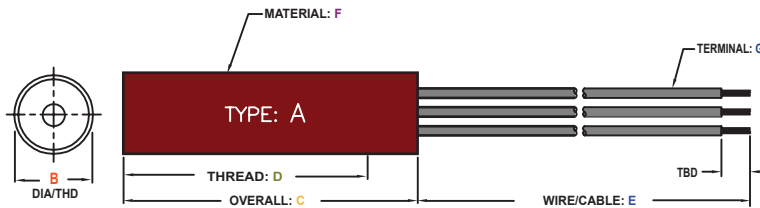
HP Product Sample: P/N: HP230-400



PARAMETER	Symbol	MIN	TYP	MAX	UNIT
SUPPLY VOLTAGE	(Vcc)	4.5	-	24	V
SUPPLY CURRENT	(Icc)	-	9	14	mA
OUTPUT CURRENT	(Isink)	-	-	30	mA
OUTPUT VOLTAGE High	(Vout H)	4.5	-	24	V
OUTPUT VOLTAGE Low	(Vout L)	-	100	300	mV
PULL-UP RESISTOR (INTERNAL)	(RL)	-	-	4.7	K OHM
MAGNETIC OPERATE POINT	(Bop)	70	180	290	GAUSS
MAGNETIC RELEASE POINT	(Brp)	0	140	230	GAUSS
MAGNETIC HYSTERESIS	(BH)	20	40	120	GAUSS
OUTPUT RISE TIME	(Tr)	-	.30	1.00	µS
OUTPUT FALL TIME	(Tf)	-	.30	1.00	µS
OPERATING TEMP. RANGE	(TO)	-40	-	105	°C
TARGET (Magnet .250"D X .200"L, NeFdB 35)	(T)	1	-	-	KG
AIRGAP	(AG)	.355	-	.425	INCH
SWITCHING FREQUENCY	(F)	0	-	200	KHZ
VIBRATION @ 10-2KHZ	(VI)	0	-	15	G
HUMIDITY, STEADY STATE	(RH)	-	-	95	%
DIELECTRIC STRENGTH	(DS)	-	-	150	VRMS

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.



CASE TYPE	DISCRPTION	A
	SMOOTH	0
	ALL THREAD	1
	HEX HEAD	2
	KNURL HEAD	3
	CONNECTOR HEAD	4
	WRENCH FLAT HEAD	5

P/N	A	B	C	D	E	F	G
* HP112-400	1	M12 x .75	.950	-	98±3	ALUM	22 AWG, PVC CABLE
* HP142-400	1	15/32-32	1.00	-	6.00	303 S.S	22 AWG, PVC CABLE
* HP150-200	1	1/2 - 20	1.00	-	40 ± 2	303 S.S	CABLE/DEUTCH CONN.
HP150-400	1	1/2 - 20	1.00	-	40 ± 2	303 S.S	22 AWG, PVC CABLE
*** HP230-400	2	3/8- 24	1.50	1.25	48 ± 3	303 S.S	22 AWG, PVC CABLE
HP360-400	3	5/8-18	2.72	2.14	72 ± 2	303 S.S	22 AWG, PVC CABLE
** HP460-400	4	5/8-18	5.7	4.5	-	303 S.S	MS3106 CONNECTOR
** HP460-010	4	5/8-18	4.17	2.5	-	303 S.S	MS3106 CONNECTOR
** HP460-020	4	5/8-18	3.4	1.7	-	303 S.S	MS3106 CONNECTOR

NOTE: ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED.

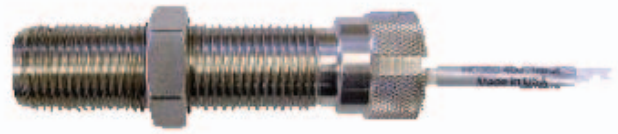
* : WITHOUT INTERNAL PULL-UP RESISTOR (OPEN OUTPUT)

** : OUTPUT "HIGH" = 5VDC MAX.

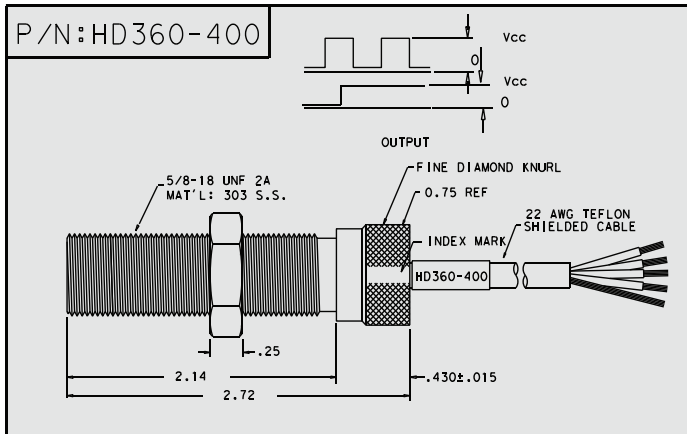
*** : SEALED FRONT

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.



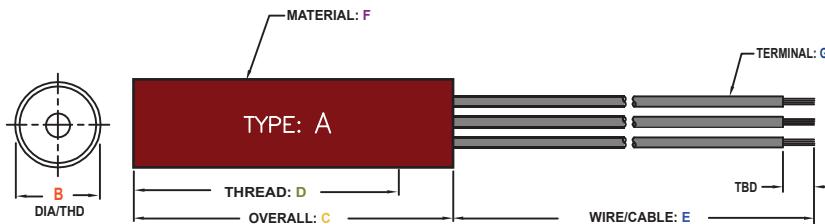
HD Product Sample: P/N: HD360-400

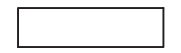




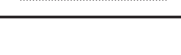


PARAMETER	Symbol	MIN	TYP	MAX	UNITS
SUPPLY VOLTAGE	(V _{cc})	5.5	-	36	V
SUPPLY CURRENT	(I _{cc})	-	18	25	mA
OUTPUT CURRENT	(I _{sink})	-	-	25	mA
OUTPUT VOLTAGE (signal) High	(V _{out H})	4	-	5.5	V
OUTPUT VOLTAGE (signal) Low	(V _{out L})	100	150	400	mV
DIRECTION OUTPUT (CW)	(DO)	4	-	5	V
DIRECTION OUTPUT (C.C.W)	(DO)	100	-	400	mV
OUTPUT DUTY CYCLE	(D out)	40	50	60	%
SPEED FREQUENCY	(F)	0	-	12	KHZ
OUTPUT RISE TIME	(Tr)	-	-	1	µS
OUTPUT FALL TIME	(Tf)	-	-	1	µS
OPERATING TEMP. RANGE	(TO)	-40	-	125	°C
TARGET	(T)	4	-	30	PITCH
AIRGAP	(AG)	.005	-	.100	INCH
DIELECTRIC STRENGTH	(DS)	-	-	150	VRMS
REVERSE POLSRITY PROTECTION	(Vr)	-	-	-50	V
OVER INPUT VOLT. PROTECTION	(Ov P)	-	-	40	V
SHORT CIRCUIT PROTECTION	(Sc P)	100	-	200	µS
@ 150 µA max					
LOAD DUMP	-	-	-	60	V

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.



CASE TYPE	DISCRPTION	A
	SMOOTH	0
	ALL THREAD	1
	HEX HEAD	2
	KNURL HEAD	3
	CONNECTOR HEAD	4
	WRENCH FLAT HEAD	5

P/N	A	B	C	D	E	F	G
HD270-400	2	3/4 - 16	2.30	1.87	72± 3	ALUM	22 AWG TEFLON CABLE
HD360-400	3	5/8 - 18	2.72	2.14	72 ± 3	303 S.S	22 AWG TEFLON CABLE
HD518-400	5	M18 X 1.5	2.14	1.89	120 ± 3	303 S.S	22 AWG TEFLON CABLE

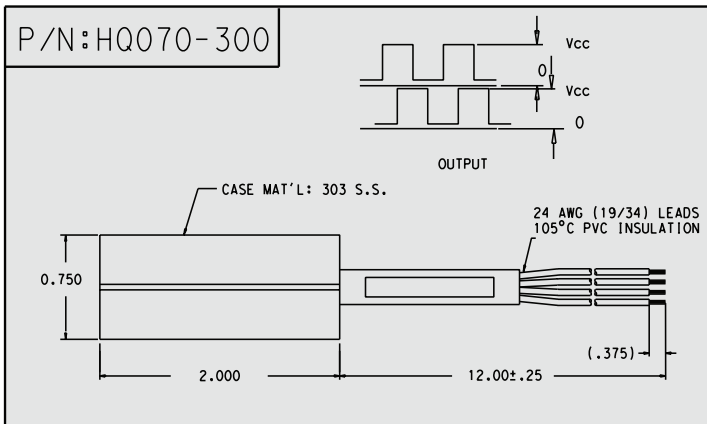
NOTE: ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED.

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.



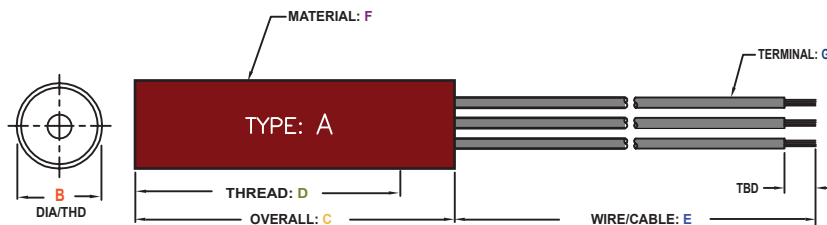
HQ Product Sample: P/N: HQ070-300









PARAMETER	Symbol	MIN	TYP	MAX	UNITS
SUPPLY VOLTAGE	(Vcc)	4	-	26	V
SUPPLY CURRENT	(Icc)	3	12	14	mA
OUTPUT CURRENT	(Isink)	-	-	25	mA
OUTPUT VOLTAGE HIGH	(Vout H)	4	-	26	V
OUTPUT VOLTAGE LOW	(Vout L)	100	-	400	mA
SPEED FREQUENCY	(F)	0	-	15	KHZ
TARGET	(T)	4	-	30	PITCH
AIRGAP	(AG)	.005	-	.100	INCH
OPERATING TEMP. RANGE	(TO)	-40	-	100	°C
OUTPUT RISE TIME	(Tr)	-	-	1	µS
OUTPUT FALL TIME	(Tf)	-	-	1	µS
QUADRATURE PHASING	(Qph)	70	90	110	DEG
OUTPUT DUTY CYCLE	(Dout)	35	50	65	%
DIELECTRIC STRENGTH	(DS)	-	-	150	VRMS
VIBRATION @ 10-2 KHZ	(VI)	10	-	15	G

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.



CASE TYPE	DESCRIPTION	A
	SMOOTH	0
	ALL THREAD	1
	HEX HEAD	2
	KNURL HEAD	3
	CONNECTOR HEAD	4
	WRENCH FLAT HEAD	5

P/N	A	B	C	D	E	F	G
HQ070-300	0	3/4 - 16	2.00	-	12 ± .25	303 S.S	24 AWG, LEAD WIRE
HQ130-400	1	3/8 - 24	1.70	1.25	12 ± 1	303 S.S	22 AWG TEFLON CABLE
HQ160-400	1	5/8 - 18	1.00	-	72 ± 3	303 S.S	22 AWG TEFLON CABLE
HQ270-400	2	3/4 - 16	2.30	1.87	72 ± 3	ALUM	22 AWG TEFLON CABLE
HQ360-400	3	5/8 - 18	2.72	2.14	120 ± 3	303 S.S	22 AWG TEFLON CABLE
HQ518-400	5	M18 X 1.5	2.14	1.84	36 ± 3	303 S.S	22 AWG TEFLON CABLE

NOTE: ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED.

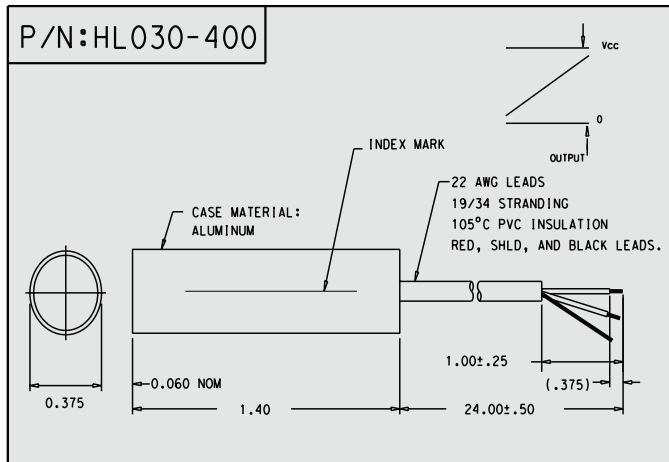
Hall-Effect Displacement Sensor w/Linear Output (HL)

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, output rotary measurement.



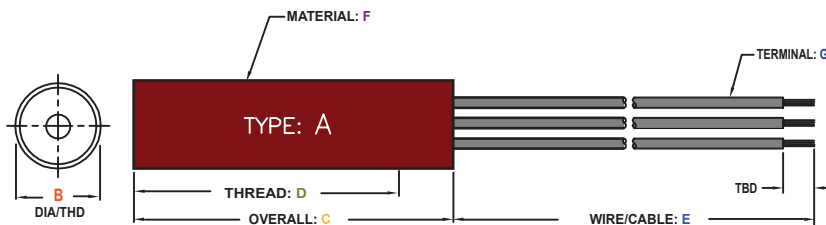
HL Product Sample: P/N: HL030-400









PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS
SUPPLY VOLTAGE	(Vcc)	4.5	-	6	V
SUPPLY CURRENT	(Icc)	-	9	10	mA
OUTPUT RESISTANCE	(Rout)	-	50	-	OHM
OUTPUT VOLTAGE. @ Gauss = 0 (Vcc=5v)	(Vout)	2.25	2.5	2.75	V
OUTPUT SENSITIVITY (0G to ±900G)	(ΔVout)	.75	1.30	1.72	mV/G
LINEARITY (Best straight line over .25")	(Vout L)	-	±3	±5	%
TARGET (Magnet .312"DX. 125"L, NeFdB 35)	(T)	4	-	900	GAUSS
AIRGAP	(AG)	0	-	.300	INCH
OPERATING TEMPERATURE RANGE	(TO)	-20	-	105	°C
STORAGE TEMPERATURE RANGE	(Ts)	-65	-	125	°C
BANDWIDTH (-3dB)	(BW)	-	23	1	KHZ
BROADBAND OUTPUT NOISE (BW=10-10Khz)	(Vout)	-	90	1	μV
HUMIDITY, STEADY STATE	(RH)	-	-	95	%
DIELECTRIC STRENGTH	(DS)	-	-	150	VRMS
VIBRATION 10-2KHZ	(Vi)	-	-	15	G

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.



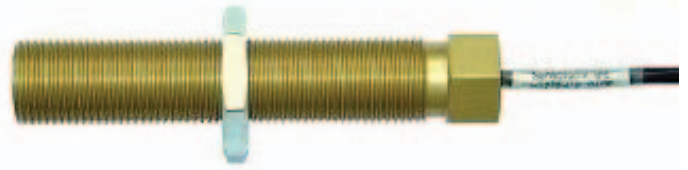
CASE TYPE	DISCRPTION	A
	SMOOTH	0
	ALL THREAD	1
	HEX HEAD	2
	KNURL HEAD	3
	CONNECTOR HEAD	4
	WRENCH FLAT HEAD	5

P/N	A	B	C	D	E	F	G
HL030-400	0	0.375	1.40	-	24 ± .5	ALUM	22 AWG, PVC CABLE
HL050-400	0	0.498	1.00	-	36 ± 1	303 S.S	22 AWG, PVC CABLE
HL112-400	1	M12 X 0.75	0.950	-	98 ± 3	ALUM	22 AWG, PVC CABLE
HL130-400	1	5/16- 24	1.50	-	12 ± 1	303 S.S	22 AWG TEFLON CABLE

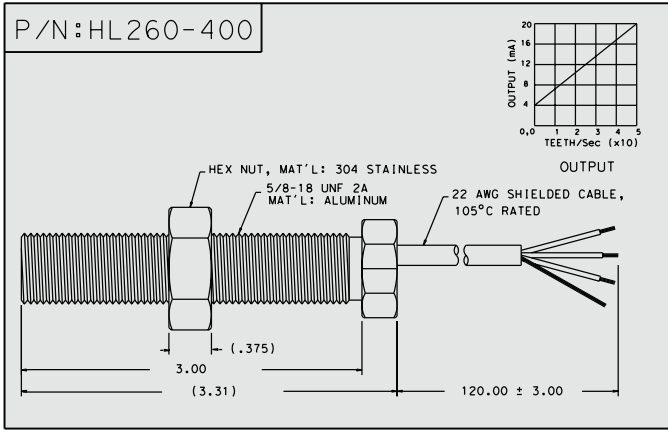
NOTE: ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED.

Non-contact magnetic speed sensor w/ linear output 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 linear output for velocity measurement.

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



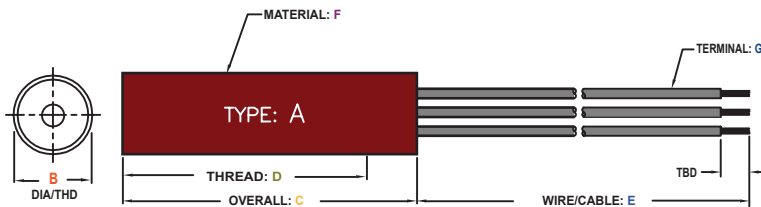
HL Product Sample: P/N: HL260-400



PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS
SUPPLY VOLTAGE	(VCC)	-	-	24	V
SUPPLY CURRENT	(ICC)	-	9	35	mA
OUTPUT CURRENT	(IO)	4	-	20	mA
OUTPUT @ 0 HZ	(IOUT L)	-	4	-	mA
OUTPUT @ 200 HZ	(IOUT H)	-	20	-	mA
FREQUENCY	(F)	0	-	200	HZ
TARGET GEAR	(T)	4	-	20	PITCH
AIRGAP	(AG)	0	-	.050	INCH
OPERATING TEMP. RANGE	(TO)	0	-	85	°C
STORAGE TEMP. RANGE	(TS)	-20	-	125	°C
VIBRATION @ 10-20KHZ	(Vi)	0	-	15	G
HUMIDITY, STEADY STATE	(RH)	-	-	95	%
DIELECTRIC STRENGTH	(DS)	-	-	150	VRMS

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.



CASE TYPE	DISCRPTION	A
	SMOOTH	0
	ALL THREAD	1
	HEX HEAD	2
	KNURL HEAD	3
	CONNECTOR HEAD	4
	WRENCH FLAT HEAD	5

HL Products w/ 4-20 mA Output

P/N	A	B	C	D	E	F	G
HL270-420	2	3/4 - 16	2.30	1.87	72 ± 3	ALUM	22 AWG, PVC CABLE
HL360-420	3	5/8 - 18	2.72	2.14	72 ± 3	303 S.S	22 AWG, PVC CABLE
HL260-420	2	5/8 - 18	3.31	3.00	120 ± 3	ALUM	22 AWG, PVC CABLE

NOTE: ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED.

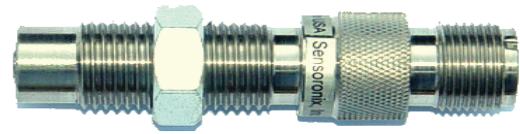
HL Products w/ 0-10 DC Voltage Output

P/N	A	B	C	D	E	F	G
HL270-410	2	3/4 - 16	2.30	1.87	72 ± 3	ALUM	22 AWG, PVC CABLE
HL360-410	3	5/8 - 18	2.72	2.14	72 ± 3	303 S.S	22 AWG, PVC CABLE
HL260-410	2	5/8 - 18	3.31	3.00	120 ± 3	ALUM	22 AWG, PVC CABLE

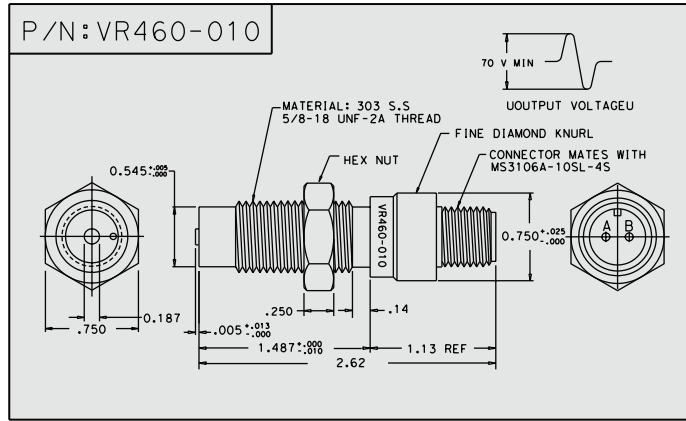
NOTE: ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED.

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.



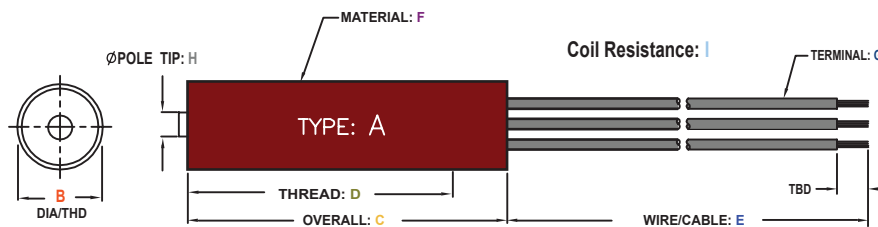
VR Product Sample: P/N: VR460-010



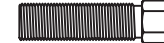





PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS
RESISTANCE AT 78°F	(R)	144	-	198	OHM
INDUCTANCE	(L)	-	-	85	mH
OUTPUT VOLTAGE	(V out)	70	-	-	V P-P
AIRGAP	(AG)	.005	-	-	INCH
TARGET WHEEL	(T)	8	-	-	PITCH
SURFACE SPEED	(SP)	30	-	1000	IPS
LOAD	(RL)	-	100	-	KOHM
POLARITY (Pin B positive w/respect to pin A with approach of ferrous target)	(P out)	-	-	-	N/A
OPERATING TEMP. RANGE	(TO)	-20	-	125	°C
STORAGE TEMPERATURE RANGE	(TS)	-40	-	150	°C
VIBRATION	10-2KHZ	(Vi)	-	15	G
HUMIDITY, STEADY STATE	(RH)	-	-	95	%
DIELECTRIC STRENGTH (pins to case)	(DS)	485	500	515	VRMS

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.



CASE TYPE	DISCRPTION	A
	SMOOTH	0
	ALL THREAD	1
	HEX HEAD	2
	KNURL HEAD	3
	CONNECTOR HEAD	4
	WRENCH FLAT HEAD	5

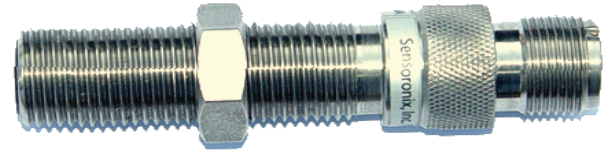
P/N	A	B	C	D	E	F	G	H	I
VR050-000	0	0.500	1.69	-	.480	PLASTIC	2 PINS (0.062, L.480)	.106	1200±20%
VR116-300	1	M16 x 1.5	4.00	-	8.25 ± .25	303 S.S	18 AWG SXL LEAD WIRE	.037	180±20%
VR118-300	1	M18 X 1.5	3.125	-	8.25 ± .25	303 S.S	18 AWG SXL LEAD WIRE	.188	180±20%
VR130-300	1	3/8-24	1.25	-	34 ± .25	303 S.S	18 AWG SXL LEAD WIRE	.040	570±20%
VR130-400	1	3/8-24	1.25	-	25 ± 1	303 S.S	22 AWG, SHIELDED CABLE	.093	650±100
VR160-300	1	5/8-18	3.125	-	72 ± 3	303 S.S	20 AWG, TEFLON LEADS	.188	180±20%
VR216-400	1	M16x1.5	3.00	2.69	6 ± .25	ALUM	22 AWG, CABLE	.093	1600±20%
VR270-100	2	3/4-16	3.00	2.57	3.5 ± .5	ALUM	16 AWG/ PACKARD CONN.	.188	565±20%
VR270-300	2	3/4-16	2.30	1.87	12 ± 1	ALUM	18 AWG, SXL LEAD WIRE	.187	450±20%
VR330-400	3	3/8-24	2.70	2.27	6 ± .5	303 S.S	22 AWG, SHIELDED CABLE	.093	670±20%
VR412-000	4	M12 X 1.25	3.88	2.50	-	304 S.S	MS3106 CONNECTOR	.093	1600±20%
VR460-000	4	5/8-18	4.25	3.12	-	303 S.S	MS3106 CONNECTOR	.188	180±20%
VR460-010	4	5/8-18	2.62	1.48	-	303 S.S	MS3106 CONNECTOR	.187	144-198
VR460-420	4	5/8-18	2.62	1.48	-	303 S.S	MS3106 CONNECTOR	.106	45-85
VR530-400	5	3/8-24	4.00	3.55	73 ± 3	303 S.S	22 AWG, SHIELDED CABLE	.092	800±20%
VR530-410	5	3/8-24	2.70	2.25	73 ± 3	303 S.S	22 AWG, SHIELDED CABLE	.092	800±20%
VR530-420	5	3/8-24	1.70	1.25	73 ± 3	303 S.S	22 AWG, SHIELDED CABLE	.092	800±20%

NOTE: ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED.

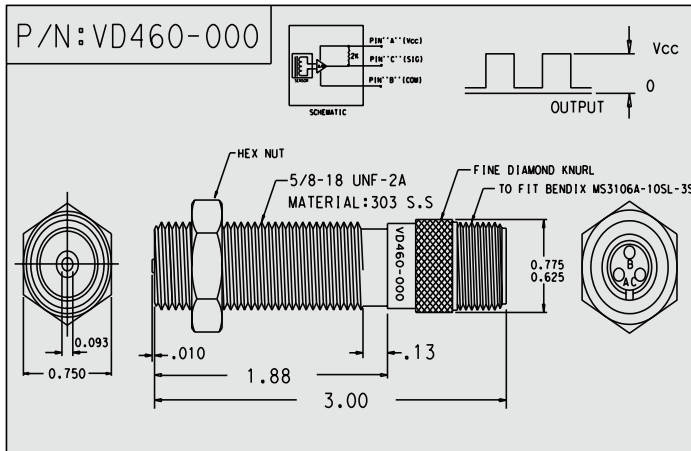
Variable Reluctance Speed Sensor W/ Digital Output (VD)

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.



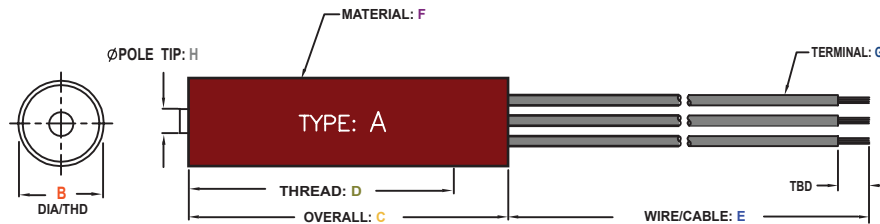
VD Product Sample: P/N: VD460-000



PARAMETER	SYMBOL	MIN	TYP	MAX	UNITS
SUPPLY VOLTAGE	(Vcc)	5	-	25	V
SUPPLY CURRENT	(Icc)	-	-	10	mA
OUTPUT CURRENT	(I sink)	-	7	25	mA
OUTPUT VOLTAGE High	(V out H)	5	-	25	V
OUTPUT VOLTAGE Low	(V out L)	100	150	400	mV
OUTPUT PULL-UP RESISTOR	(RL)	-	2	5	Kohm
SURFACE SPEED	(SP)	30	-	1000	IPS
AIRGAP	(AG)	.005	-	.100	INCH
TARGET WHEEL	(T)	8	-	16	PITCH
OUTPUT RISE TIME	(Tr)	-	.30	1.00	µS
OUTPUT FALL TIME	(Tf)	-	.30	1.00	µS
OPERATING TEMP. RANGE	(TO)	-40	-	125	°C
STORAGE TEMP. RANGE	(TS)	-40	-	125	°C
DIELECTRIC STRENGTH	(DS)	-	-	150	VRMS
HUMIDITY, STEADY STATE	(RH)	-	-	95	%
VIBRATION @ 10-2KHZ	(VI)	0	-	15	G

Standard (VD) 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.



CASE TYPE	DESCRIPTION	A
	SMOOTH	0
	ALL THREAD	1
	HEX HEAD	2
	KNURL HEAD	3
	CONNECTOR HEAD	4
	WRENCH FLAT HEAD	5

P/N	A	B	C	D	E	F	G	H
VD270-400	2	3/4 - 16	3.34	3.00	120 ± 1	303 S.S	22 AWG, SHIELDED CABLE	.093
VD360-400	3	5/8 - 18	2.72	2.14	72 ± 2	303 S.S	22 AWG, SHIELDED CABLE	.093
VD460-000	4	5/8 - 18	3.00	1.88	-	303 S.S	MS3106 CONNECTOR	.093

NOTE: ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED.