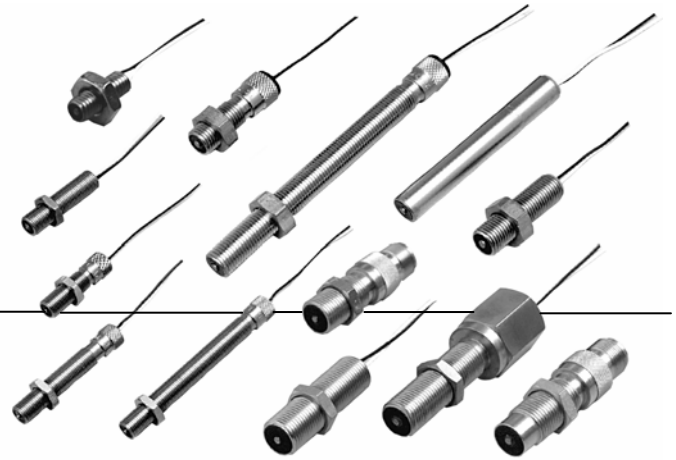


General Purpose Industrial VRS Magnetic Speed Sensors



DESCRIPTION

General Purpose VRS sensors are designed for use in applications with medium to high speeds or in electrically noisy environments with relatively small air gaps.

Passive VRS (Variable Reluctance Speed) Magnetic Speed sensors are simple, rugged devices that do not require an external voltage source for operation.

A permanent magnet in the sensor establishes a fixed magnetic field. The approach and passing of a ferrous metal target near the sensor's pole piece (sensing area) changes the flux of the magnetic field, dynamically changing its strength. This change in magnetic field strength induces a current into a coil winding which is attached to the output terminals.

FEATURES

- Self-powered operation
- Direct conversion of actuator speed to output frequency
- Simple installation
- No moving parts
- Designed for use over a wide range of speeds
- Adaptable to a wide variety of configurations
- Customized VRS products for unique speed sensing applications
- Housing diameters: 5/8 in (M16), 3/8 in (M12) mm, 1/4 in (M8), 10/32 in
- Housing materials/styles: stainless steel threaded or smooth
- Terminations: MS3106 connector, preleaded
- Output voltages: 8 Vp-p to 40 Vp-p

The output signal of a VRS sensor is an ac voltage that varies in amplitude and wave frequency as the speed of the monitored device changes, and is usually expressed in peak to peak voltage (Vp-p).

One complete waveform (cycle) occurs as each target passes the sensor's pole piece. If a standard gear were used as a target, this output signal would resemble a sine wave if viewed on an oscilloscope.

Honeywell also offers VRS sensors for high output, power output, high resolution, high temperature and hazardous location applications, as well as low-cost molded versions.

POTENTIAL APPLICATIONS

- Engine RPM (revolutions per minute) measurement on aircraft, automobiles, boats, buses, trucks and rail vehicles
- Motor RPM measurement on drills, grinders, lathes and automatic screw machines
- Motor RPM measurement on precision camera, tape recording and motion picture equipment
- Process speed measurement on food, textile, paper, woodworking, printing, tobacco and pharmaceutical industry machinery
- Motor speed measurement of electrical generating equipment
- Speed measurement of pumps, blowers, mixers, exhaust and ventilating fans
- Flow measurement on turbine meters
- Wheel-slip measurement on autos and locomotives
- Gear speed measurement

General Purpose

5/8 INCH (M16*) SENSORS (All dimensions for reference only. mm/[in])

*Contact Honeywell for availability of metric mounting thread versions.

General Specifications

Parameter	Characteristic	Parameter	Characteristic
Min. output voltage	40 Vp-p	Inductance	25 mH max.
Coil resistance	45 Ohm to 85 Ohm	Gear pitch range	24 DP (module 1.06) or coarser
Pole piece diameter	2,69 mm [0.106 in]	Optimum actuator	20 DP (module 1.27) ferrous metal gear
Min. surface speed	0,50 m/s [20 in/s] typ.	Max. operating frequency	50 kHz typ.
Operating temp. range	-55 °C to 120 °C [-67 °F to 250 °F]	Vibration	Mil-Std 202F Method 204D
Mounting thread	5/8-18 UNF-2A	Termination	MS3106 connector

Test Condition Specifications

Parameter	Characteristic
Surface speed	25 m/s [1000 in/s]
Gear	20 DP (module 1.27)
Air gap	0,127 mm [0.005 in]
Load resistance	100 kOhm

Catalog Listing	Thread Length (A)	Weight	
3010AN	28 mm [1.1 in]	70 g [2.5 oz]	
3010AN25	63 mm [2.5 in]	84 g [3.0 oz]	
3010AN30	76 mm [3.0 in]	84 g [3.0 oz]	
3010AN40	101 mm [4.0 in]	98 g [3.5 oz]	
3010AN50	127 mm [5.0 in]	128 g [4.5 oz]	

Catalog Listing	Thread Length (A)	Weight	
3010A	35 mm [1.4 in]	70 g [2.5 oz]	
3010A25	63 mm [2.5 in]	84 g [3.0 oz]	

Industrial VRS Magnetic Speed Sensors

5/8 INCH (M16*) SENSORS CONTINUED (All dimensions for reference only. mm/[in])

*Contact Honeywell for availability of metric mounting thread versions.

General Specifications

Parameter	Characteristic	Parameter	Characteristic
Min. output voltage	40 Vp-p	Inductance	25 mH max.
Coil resistance	45 Ohm to 85 Ohm	Gear pitch range	24 DP (module 1.06) or coarser
Pole piece diameter	2,69 mm [0.106 in]	Optimum actuator	20 DP (module 1.27) ferrous metal gear
Min. surface speed	0,50 m/s [20 in/s] typ.	Max. operating frequency	50 kHz typ.
Operating temp. range	-55 °C to 120 °C [-67 °F to 250 °F]	Vibration	Mil-Std 202F Method 204D
Mounting thread	5/8-18 UNF-2A	Termination	20 AWG Teflon-insulated leads

Test Condition Specifications

Parameter	Characteristic
Surface speed	25 m/s [1000 in/s]
Gear	20 DP (module 1.27)
Air gap	0,127 mm [0.005 in]
Load resistance	100 kOhm

Catalog Listing	Weight	
3010H20	140 g [5.0 oz]	

Catalog Listing	Thread Length (A)	Weight	
3010S20	50 mm [2.0 in]	70 g [2.5 oz]	
3010S30	76 mm [3.0 in]	84 g [3.0 oz]	

General Purpose

3/8 INCH (M12*) SENSORS

*Contact Honeywell for availability of metric mounting thread versions.

General Specifications

Parameter	Characteristic	Parameter	Characteristic
Min. output voltage	20 Vp-p	Inductance	15 mH max.
Coil resistance	45 Ohm to 65 Ohm	Gear pitch range	26 DP (module 0.98) or coarser
Pole piece diameter	2,36 mm [0.093 in]	Optimum actuator	24 DP (module 1.06) ferrous metal gear
Min. surface speed	0,50 m/s [20 in/s] typ.	Max. operating frequency	50 kHz typ.
Operating temp. range	-40 °C to 107 °C [-40 °F to 225 °F]	Vibration	Mil-Std 202F Method 204D
Mounting thread	3/8-24 UNF-2A	Termination	24 AWG vinyl-insulated leads

Test Condition Specifications

Parameter	Characteristic
Surface speed	25 m/s [1000 in/s]
Gear	20 DP (module 1.27)
Air gap	0,127 mm [0.005 in]
Load resistance	100 kOhm

Catalog Listing	Thread Length (A)	Weight	
3015A	20 mm [0.8 in]	28 g [1.0 oz]	
3015A17	44 mm [1.7 in]	35 g [1.2 oz]	
3015A35	88 mm [3.5 in]	42 g [1.5 oz]	

Catalog Listing	Weight	
3015S13	28 g [1.0 oz]	

Catalog Listing	Thread Length (A)	Weight	
3015SS13	30 mm [1.2 in]	28 g [1.0 oz]	
3015SS25	63 mm [2.5 in]	42 g [152 oz]	

Industrial VRS Magnetic Speed Sensors

1/4 INCH (M8*) SENSORS (All dimensions for reference only. mm/[in])

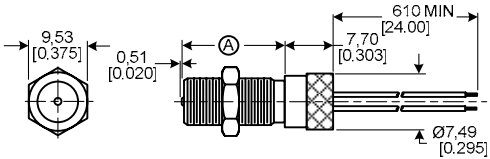
*Contact Honeywell for availability of metric mounting thread versions.

General Specifications

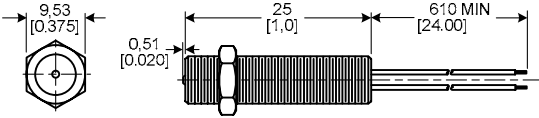
Parameter	Characteristic	Parameter	Characteristic
Min. output voltage	12 Vp-p	Inductance	16 mH max.
Coil resistance	190 Ohm max.	Gear pitch range	36 DP (module 0.70) or coarser
Pole piece diameter	1,00 mm [0.040 in]	Optimum actuator	28 DP (module 0.90) ferrous metal gear
Min. surface speed	0,75 m/s [30 in/s] typ.	Max. operating frequency	60 kHz typ.
Operating temp. range	-40 °C to 107 °C [-40 °F to 225 °F]	Vibration	Mil-Std 202F Method 204D
Mounting thread	1/4-40 UNS-2A	Termination	30 AWG vinyl-insulated leads

Test Condition Specifications

Parameter	Characteristic
Surface speed	25 m/s [1000 in/s]
Gear	20 DP (module 1.27)
Air gap	0,127 mm [0.005 in]
Load resistance	100 kOhm

Catalog Listing	Thread Length (A)	Weight	
3050	15 mm [0.6 in]	14 g [0.5 oz]	
3050A13	30 mm [1.2 in]	14 g [0.5 oz]	
3050A20	50 mm [2.0 in]	14 g [0.5 oz]	

Parameter	Characteristic	Parameter	Characteristic	Parameter	Characteristic
Min. output voltage	12 Vp-p	Inductance	16 mH max.	Surface speed	25 m/s [1000 in/s]
Coil resistance	190 Ohm max.	Gear pitch range	36 DP (module 0.70) or coarser	Gear	20 DP (module 1.27)
Pole piece diameter	1,00 mm [0.040 in]	Optimum actuator	28 DP (module 0.90) ferrous metal gear	Air gap	0,127 mm [0.005 in]
Min. surface speed	0,75 m/s [30 in/s] typ.	Max. operating frequency	60 kHz typ.	Load resistance	100 kOhm
Operating temp. range	-40 °C to 107 °C [-40 °F to 225 °F]	Vibration	Mil-Std 202F Method 204D		
Mounting thread	1/4-40 UNS-2A	Termination	30 AWG PVC-insulated leads		

Catalog Listing	Thread Length	Weight	
3050S10	25 mm [1.0 in]	14 g [0.5 oz]	

General Purpose

10/32 INCH SENSORS (All dimensions for reference only. mm/[in])
(No metric available.)

General Specifications				Test Condition Specifications	
Parameter	Characteristic	Parameter	Characteristic	Parameter	Characteristic
Min. output voltage	8 Vp-p	Inductance	14 mH max.	Surface speed	25 m/s [1000 in/s]
Coil resistance	155 Ohm	Gear pitch range	32 DP (module 0.80) or coarser	Gear	20 DP (module 1.27)
Pole piece diameter	1,5 mm [0.062 in]	Optimum actuator	26 DP (module 0.98) ferrous metal gear	Air gap	0,127 mm [0.005 in]
Min. surface speed	0,75 m/s [30 in/s] typ.	Max. operating frequency	60 kHz (typ.)	Load resistance	100 kOhm
Operating temp. range	-40 °C to 107 °C [-40 °F to 225 °F]	Vibration	Mil-Std 202F Method 204D		
Mounting thread	10-32 UNF-2A	Termination	32 AWG Teflon-insulated leads		

Catalog Listing	Thread Length	Weight	
3080	12 mm [0.5 in]	8,5 g [0.3 oz]	

Industrial VRS Magnetic Speed Sensors

THIS PAGE INTENTIONALLY LEFT BLANK.

WARNING

PERSONAL INJURY

DO NOT USE these products as safety or emergency stop devices or in any other application where failure of the product could result in personal injury.

Failure to comply with these instructions could result in death or serious injury.

WARRANTY/REMEDY

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship. Honeywell's standard product warranty applies unless agreed to otherwise by Honeywell in writing; please refer to your order acknowledgement or consult your local sales office for specific warranty details. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace, at its option, without charge those items it finds defective. **The foregoing is buyer's sole remedy and is in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose. In no event shall Honeywell be liable for consequential, special, or indirect damages.**

While we provide application assistance personally, through our literature and the Honeywell web site, it is up to the customer to determine the suitability of the product in the application.

Specifications may change without notice. The information we supply is believed to be accurate and reliable as of this printing. However, we assume no responsibility for its use.

WARNING

MISUSE OF DOCUMENTATION

- The information presented in this product sheet is for reference only. Do not use this document as a product installation guide.
- Complete installation, operation, and maintenance information is provided in the instructions supplied with each product.

Failure to comply with these instructions could result in death or serious injury.

SALES AND SERVICE

Honeywell serves its customers through a worldwide network of sales offices, representatives and distributors. For application assistance, current specifications, pricing or name of the nearest Authorized Distributor, contact your local sales office or:

E-mail: info.sc@honeywell.com

Internet: www.honeywell.com/sensing

Phone and Fax:

Asia Pacific	+65 6355-2828
	+65 6445-3033 Fax
Europe	+44 (0) 1698 481481
	+44 (0) 1698 481676 Fax
Latin America	+1-305-805-8188
	+1-305-883-8257 Fax
USA/Canada	+1-800-537-6945
	+1-815-235-6847
	+1-815-235-6545 Fax

Automation and Control Solutions

Sensing and Control

Honeywell

1985 Douglas Drive North

Minneapolis, MN 55422

www.honeywell.com/sensing

005875-2-EN IL50 GLO Printed in USA
November 2007

Copyright © 2007 Honeywell International Inc. All rights reserved.

Honeywell

Hazardous Location Industrial VRS Magnetic Speed Sensors



DESCRIPTION

Hazardous Location VRS sensors are designed for use in locations where explosion-proof or intrinsically safe sensors are required.

Passive VRS (Variable Reluctance Speed) Magnetic Speed sensors are simple, rugged devices that do not require an external voltage source for operation.

A permanent magnet in the sensor establishes a fixed magnetic field. The approach and passing of a ferrous metal target near the sensor's pole piece (sensing area) changes the flux of the magnetic field, dynamically changing its strength. This change in magnetic field strength induces a current into a coil winding which is attached to the output terminals.

FEATURES

- Self-powered operation
- Direct conversion of actuator speed to output frequency
- Simple installation
- No moving parts
- Designed for use over a wide range of speeds
- Adaptable to a wide variety of configurations
- Customized VRS products for unique speed sensing applications
- Housing diameters: 3/4 in, 5/8 in
- Housing material/style: stainless steel threaded
- Terminations: MS3106 connector, preleaded
- Output voltages: 30 Vp-p to 60 Vp-p

The output signal of a VRS sensor is an ac voltage that varies in amplitude and wave frequency as the speed of the monitored device changes, and is usually expressed in peak to peak voltage (Vp-p).

One complete waveform (cycle) occurs as each target passes the sensor's pole piece. If a standard gear were used as a target, this output signal would resemble a sine wave if viewed on an oscilloscope.

Honeywell also offers VRS sensors for general purpose, high output, power output, high resolution and high temperature, as well as low-cost molded versions.

POTENTIAL APPLICATIONS

- Engine RPM (revolutions per minute) measurement on aircraft, automobiles, boats, buses, trucks and rail vehicles
- Motor RPM on oil and gas drilling equipment and machinery
- Motor RPM measurement on drills, grinders, lathes and automatic screw machines
- Process speed measurement on food, textile, paper, woodworking, printing, tobacco and pharmaceutical industry machinery
- Motor speed measurement of electrical generating equipment in grain elevators, sawmills and other potentially explosive environments
- Speed measurement of pumps, blowers, mixers, exhaust
- Gear speed measurement

Hazardous Location

3/4 INCH EXPLOSION-PROOF SENSORS (All dimensions for reference only. mm/[in])

When properly installed using the explosion containment method, all 3070X and catalog listings on this page are certified for use in hazardous locations as follows: Class I, Groups A, B, C, D; Class II Groups E, F, G; Class III.

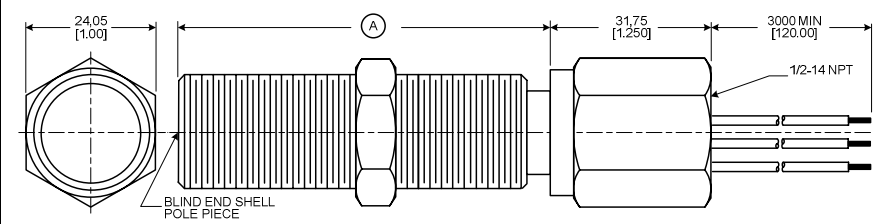
These catalog listings have been tested to and meet the requirements of applicable U.S. and Canadian specifications for the locations described above.

General Specifications

Parameter	Characteristic	Parameter	Characteristic
Min. output voltage	60 Vp-p	Inductance	115 mH max.
Coil resistance	191 Ohm to 280 Ohm	Gear pitch range	12 DP (module 2.11) or coarser
Pole piece diameter	4,75 mm [0.187 in]	Optimum actuator	8 DP (module 3.17) ferrous metal gear
Min. surface speed	0,38 m/s [15 in/s] typ.	Max. operating frequency	40 kHz typ.
Operating temp. range	-73 °C to 93 °C [-100 °F to 200 °F]	Vibration	Mil-Std 202F Method 204D
Mounting thread	3/4-20 UNEF-2A	Termination	18 AWG PVC-Insulated Leads

Test Condition Specifications

Parameter	Characteristic
Surface speed	25 m/s [1000 in/s]
Gear	8 DP (module 3.17)
Air gap	0,127 mm [0.005 in]
Load resistance	100 kOhm


Catalog Listing	Thread Length (A)	Weight	
3070A 3070A35	45 mm [1.8 in] 88 mm [3.5 in]	294 g [10.5 oz] 322 g [11.5 oz]	

Industrial VRS Magnetic Speed Sensors

5/8 INCH EXPLOSION-PROOF SENSORS (All dimensions for reference only. mm/[in])

When properly installed using the explosion containment method, the 3090X catalog listings on this page are certified for use in hazardous locations as follows: Class I, Groups A, B, C, D; Class II Groups E, F, G; Class III.

These catalog listings have been tested to and meet the requirements of applicable U.S. and Canadian specifications for the locations described above.

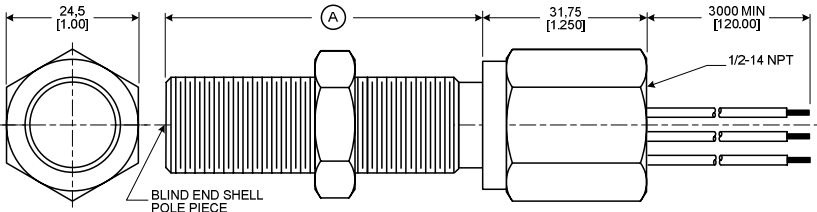
The catalog listings on this page conform to standards:  II 3 G EEx nA II T6.

General Specifications

Parameter	Characteristic	Parameter	Characteristic
Min. output voltage	60 Vp-p	Inductance	115 mH max.
Coil resistance	191 Ohm to 280 Ohm	Gear pitch range	12 DP (module 2.11) or coarser
Pole piece diameter	4,75 mm [0.187 in]	Optimum actuator	8 DP (module 3.17) ferrous metal gear
Minimum surface speed	0,38 m/s [15 in/s] typ.	Maximum operating frequency	40 kHz typ.
Operating temp. range	-73 °C to 93 °C [-100 °F to 200 °F]	Vibration	Mil-Std 202F Method 204D
Mounting thread	5/8-20 UNF-2A	Termination	18 AWG PVC-insulated leads

Test Condition Specifications

Parameter	Characteristic
Surface speed	25 m/s [1000 in/s]
Gear	8 DP (module 3.17)
Air gap	0,127 mm [0.005 in]
Load resistance	100 kOhm

Catalog Listing	Thread Length (A)	Weight	
3090A 3090A35	45 mm [1.8 in] 88 mm [3.5 in]	280 g [9.0 oz] 366 g [10.0 oz]	

5/8 INCH (M16*) INTRINSICALLY SAFE VRS SENSORS (All dimensions for reference only. mm/[in])

*Contact Honeywell for availability of metric mounting thread versions.

When properly installed using the intrinsic safety protection method connected per the control drawings on pages 6 and 7, catalog listings 3042A is intrinsically safe for hazardous locations as follows:

Class I, Groups A, B, C, D.

This product has been tested to and meets the requirements of applicable U.S. and Canadian specifications for the locations described above.

General Specifications

Parameter	Characteristic	Parameter	Characteristic
Min. output voltage	30 Vp-p	Inductance	26 mH max.
Coil resistance	150 Ohm	Gear pitch range	16 DP (module 1.58) or coarser
Pole piece diameter	3,9 mm [0.156 in]	Optimum actuator	12 DP (module 3.17) ferrous metal gear
Min. surface speed	0,38 m/s [15 in/s] typ.	Max. operating frequency	40 kHz typ.
Operating temp. range	-55 °C to 120 °C [-67 °F to 250 °F]	Vibration	N/A
Mounting thread	5/8-18 UNF-2A	Termination	MS3106 connector

Test Condition Specifications

Parameter	Characteristic
Surface speed	25 m/s [1000 in/s]
Gear	8 DP (module 3.17)
Air gap	0,127 mm [0.005 in]
Load resistance	100 kOhm

Catalog Listing	Weight	<p>Technical drawing of the 3042A connector. The side view shows a hexagonal connector with a central pin. Dimensions include: hexagonal face width 19.05 [0.750], pin diameter Ø13.84 [0.545], pin length 28.12 [1.107], main body length 36.5 [1.437], and total length 28.12 [1.107]. The end view shows a hexagonal face with a central pin and two small holes labeled A and B.</p>
3042A	70 g [2.5 oz]	

Industrial VRS Magnetic Speed Sensors

5/8 INCH (M16*) INTRINSICALLY SAFE VRS SENSORS (All dimensions for reference only. mm/[in])

*Contact Honeywell for availability of metric mounting thread versions.

When properly installed using the intrinsic safety protection method connected per the control drawings on pages 6 and 7, catalog listing 3042H20 is intrinsically safe for hazardous locations as follows:

Class I, Groups A, B, C, D; Class II Groups E, F, G; Class III.

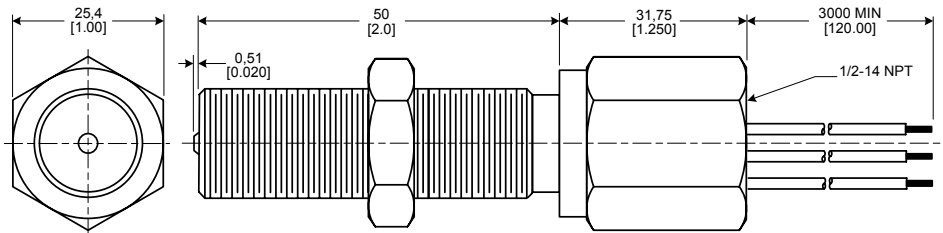
This product has been tested to and meets the requirements of applicable U.S. and Canadian specifications for the locations described above.

General Specifications

Parameter	Characteristic	Parameter	Characteristic
Min. output voltage	30 Vp-p	Inductance	26 mH max.
Coil resistance	150 Ohm	Gear pitch range	16 DP (module 1.58) or coarser
Pole piece diameter	3,9 mm [0.156 in]	Optimum actuator	12 DP (module 3.17) ferrous metal gear
Min. surface speed	0,38 m/s [15 in/s] typ.	Max. operating frequency	40 kHz typ.
Operating temp. range	-55 °C to 120 °C [-67 °F to 250 °F]	Vibration	N/A
Mounting thread	5/8-18 UNF-2A	Termination	18 AWG PVC-insulated leads

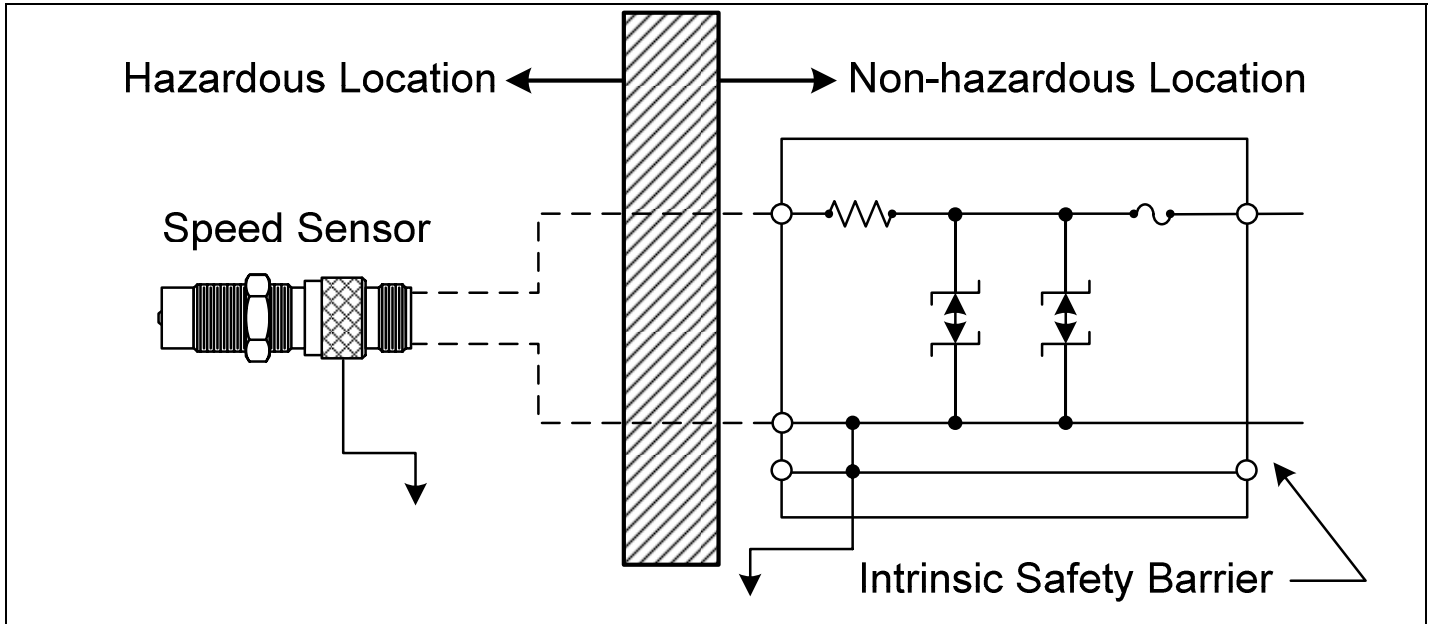
Test Condition Specifications

Parameter	Characteristic
Surface speed	25 m/s [1000 in/s]
Gear	8 DP (module 3.17)
Air gap	0,127 mm [0.005 in]
Load resistance	100 kOhm

Catalog Listing	Weight		
3042AH20	140 g [5.0 oz]		

Hazardous Location

CONTROL DRAWING FOR SINGLE CHANNEL BARRIERS



HAZARDOUS LOCATIONS

Catalog listing 3042H20:

- Class I, Groups A, B, C, D
- Class II, Groups E, F, G
- Class III

Catalog listing 3042A:

- Class I, Groups A, B, C, D

ENTITY PARAMETERS

$V_{max} = 24 \text{ V}$, $I_{max} = 35 \text{ mA}$, $L_i = 26 \text{ mH}$, $C_i = 0 \text{ } \mu\text{F}$

Any barrier (see General Notes) with entity parameters connected in accordance with barrier manufacturers instructions of:

$V_{max} \geq V_{oc}$ $C_a \geq C_i + \text{cable capacitance}$

$I_{max} \geq I_{sc}$ $L_a \geq L_i + \text{cable inductance}$

SYSTEM PARAMETERS

Any barrier (see General Notes) having one of the following specified parameters:

V_{max}	R_{min}	V_{max}	R_{min}	V_{max}	R_{min}
30	707	20	421	10	136
25	580	15	278	5	1

GENERAL NOTES

1. For jurisdictions requiring certification to the applicable Canadian standards, the barrier must be CSA Certified and the system must be installed in accordance with the Canadian Electrical Code Part 1.
2. For jurisdictions requiring certification to the applicable Occupational Safety and Health Administration (OSHA) standards, the barrier must be CSA NRTL or equivalent and the system must be installed in accordance with the National Electrical Code (NEC), article 504 or ANSI/NFPA 70.

SENSOR GROUNDING

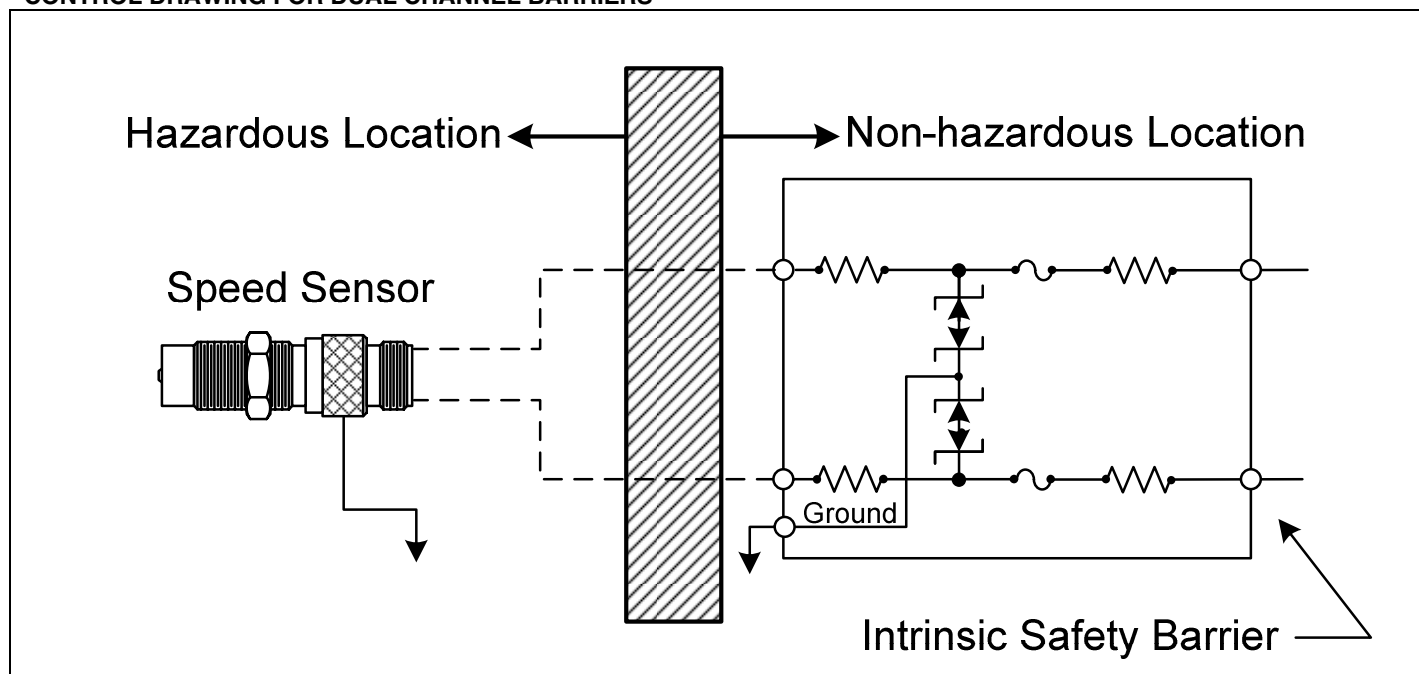
Catalog listing 3042A: Sensor housing must be connected to intrinsically safe system ground during installation.

Catalog listing 3042H20: Green wire must be connected to intrinsically safe system ground.

Exia = Intrinsically Safe, Sécurité Intrinsèque

Industrial VRS Magnetic Speed Sensors

CONTROL DRAWING FOR DUAL CHANNEL BARRIERS



HAZARDOUS LOCATIONS

Catalog listing 3042H20:

- Class I, Groups A, B, C, D
- Class II, Groups E, F, G
- Class III

Catalog listing 3042A:

Class I, Groups A, B, C, D

ENTITY PARAMETERS

$V_{max} = 24 \text{ V}$, $I_{max} = 35 \text{ mA}$, $L_i = 26 \text{ mH}$, $C_i = 0 \text{ } \mu\text{F}$

Any barrier (see General Notes) with entity parameters connected in accordance with barrier manufacturers instructions of:

$V_{max} \geq V_{oc}$ $C_a \geq C_i + \text{cable capacitance}$

$I_{max} \geq I_{sc}$ $L_a \geq L_i + \text{cable inductance}$

SYSTEM PARAMETERS

Any barrier (see General Notes) having one of the following specified parameters:

V_{max}	R_{min}	V_{max}	R_{min}	V_{max}	R_{min}
30	1414	20	842	10	272
25	1160	15	556	5	2

GENERAL NOTES

1. For jurisdictions requiring certification to the applicable Canadian standards, the barrier must be CSA Certified and the system must be installed in accordance with the Canadian Electrical Code Part 1.
2. For jurisdictions requiring Certification to the applicable Occupational Safety and Health Administration (OSHA) standards, the barrier must be CSA NRTL or equivalent and the system must be installed in accordance with the National Electrical Code (NEC), article 504 or ANSI/NFPA 70.

SENSOR GROUNDING

Catalog listing 3042A: Sensor housing must be connected to intrinsically safe system ground during installation.

Catalog listing 3042H20: Green wire must be connected to intrinsically safe system ground.

Exia = Intrinsically Safe, Sécurité Intrinsèque

WARNING

PERSONAL INJURY

DO NOT USE these products as safety or emergency stop devices or in any other application where failure of the product could result in personal injury.

Failure to comply with these instructions could result in death or serious injury.

WARRANTY/REMEDY

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship. Honeywell's standard product warranty applies unless agreed to otherwise by Honeywell in writing; please refer to your order acknowledgement or consult your local sales office for specific warranty details. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace, at its option, without charge those items it finds defective. **The foregoing is buyer's sole remedy and is in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose. In no event shall Honeywell be liable for consequential, special, or indirect damages.**

While we provide application assistance personally, through our literature and the Honeywell web site, it is up to the customer to determine the suitability of the product in the application.

Specifications may change without notice. The information we supply is believed to be accurate and reliable as of this printing. However, we assume no responsibility for its use.

WARNING

MISUSE OF DOCUMENTATION

- The information presented in this product sheet is for reference only. Do not use this document as a product installation guide.
- Complete installation, operation, and maintenance information is provided in the instructions supplied with each product.

Failure to comply with these instructions could result in death or serious injury.

SALES AND SERVICE

Honeywell serves its customers through a worldwide network of sales offices, representatives and distributors. For application assistance, current specifications, pricing or name of the nearest Authorized Distributor, contact your local sales office or:

E-mail: info.sc@honeywell.com

Internet: www.honeywell.com/sensing

Phone and Fax:

Asia Pacific	+65 6355-2828
	+65 6445-3033 Fax
Europe	+44 (0) 1698 481481
	+44 (0) 1698 481676 Fax
Latin America	+1-305-805-8188
	+1-305-883-8257 Fax
USA/Canada	+1-800-537-6945
	+1-815-235-6847
	+1-815-235-6545 Fax

Automation and Control Solutions

Sensing and Control

Honeywell

1985 Douglas Drive North

Minneapolis, MN 55422

www.honeywell.com/sensing

005879-1-EN IL50 GLO Printed in USA
March 2007
Copyright © 2007 Honeywell International Inc. All rights reserved.

Honeywell

High Output Industrial VRS Magnetic Speed Sensors



DESCRIPTION

High Output VRS sensors are designed for use in applications where higher output voltages are needed. They perform best at low to medium speeds with medium to high impedance loads. Front-End Sealed versions are available for use where the sensor is exposed to fluids, lubricants or adverse environmental conditions.

Passive VRS (Variable Reluctance Speed) Magnetic Speed sensors are simple, rugged devices that do not require an external voltage source for operation.

A permanent magnet in the sensor establishes a fixed magnetic field. The approach and passing of a ferrous metal target near the sensor's pole piece (sensing area) changes the flux lines of the magnetic field, dynamically changing its strength. This change in magnetic field strength induces a current into a coil winding which is attached to the output terminals.

FEATURES

- Self-powered operation
- Direct conversion of actuator speed to output frequency
- Simple installation
- No moving parts
- Designed for use over a wide range of speeds
- Adaptable to a wide variety of configurations
- Customized VRS products for unique speed sensing applications
- Housing diameters: 5/8 in (M16), 3/8 in (M12)
- Housing materials/styles: stainless steel threaded or smooth
- Terminations: MS3106 connector, preleaded
- Output voltages: 8 Vp-p to 190 Vp-p

The output signal of a VRS sensor is an ac voltage that varies in amplitude and wave frequency as the speed of the monitored device changes, and is usually expressed in peak to peak voltage (Vp-p).

One complete waveform (cycle) occurs as each target passes the sensor's pole piece. If a standard gear were used as a target, this output signal would resemble a sine wave if viewed on an oscilloscope.

Honeywell also offers VRS sensors for general purpose, power output, high resolution, high temperature, and hazardous location applications, as well as low-cost molded versions.

POTENTIAL APPLICATIONS

- Engine RPM (revolutions per minute) measurement on aircraft, automobiles, boats, buses, trucks and rail vehicles
- Motor RPM measurement on drills, grinders, lathes and automatic screw machines
- Motor RPM measurement on precision camera, tape recording and motion picture equipment
- Process speed measurement on food, textile, paper, woodworking, printing, tobacco and pharmaceutical industry machinery
- Motor speed measurement of electrical generating equipment
- Speed measurement of pumps, blowers, mixers, exhaust and ventilating fans
- Flow measurement on turbine meters
- Wheel-slip measurement on autos and locomotives
- Gear speed measurement

High Output

5/8 INCH (M16*) SENSORS (All dimensions for reference only. mm/[in])

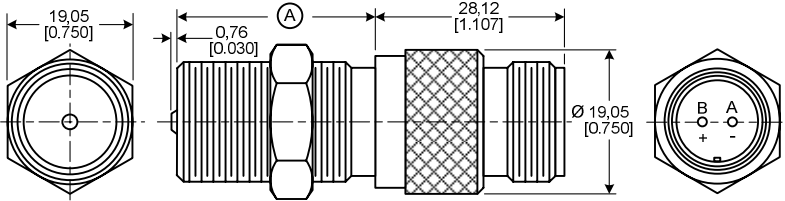
*Contact Honeywell for availability of metric mounting thread versions.

General Specifications

Parameter	Characteristic	Parameter	Characteristic
Min. output voltage	190 Vp-p	Inductance	450 mH max.
Coil resistance	910 Ohm to 1200 Ohm	Gear pitch range	24 DP (module 1.06) or coarser
Pole piece diameter	2,69 mm [0.106 in]	Optimum actuator	20 DP (module 1.27) ferrous metal gear
Min. surface speed	0,25 m/s [10 in/s] typ.	Max. operating frequency	15 kHz typ.
Operating temp. range	-55 °C to 120 °C [-67 °F to 250 °F]	Vibration	Mil-Std 202F Method 204D
Mounting thread	5/8-18 UNF-2A	Termination	MS3106 connector

Test Condition Specifications

Parameter	Characteristic
Surface speed	25 m/s [1000 in/s]
Gear	20 DP (module 1.27)
Air gap	0,127 mm [0.005 in]
Load resistance	100 kOhm

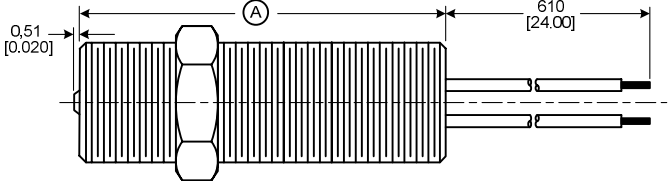
Catalog Listing	Thread Length (A)	Weight		
3030AN	28 mm [1.1 in]	70 g [2.5 oz]		
3030AN25	63 mm [2.5 in]	84 g [3.0 oz]		
3030AN30	76 mm [3.0 in]	84 g [3.0 oz]		
3030AN40	101 mm [4.0 in]	98 g [3.5 oz]		
3030AN50	127 mm [5.0 in]	128 g [4.5 oz]		

General Specifications

Parameter	Characteristic	Parameter	Characteristic
Min. output voltage	190 Vp-p	Inductance	450 mH max.
Coil resistance	910 Ohm to 1200 Ohm	Gear pitch range	24 DP (module 1.06) or coarser
Pole piece diameter	2,69 mm [0.106 in]	Optimum actuator	20 DP (module 1.27) ferrous metal gear
Min. surface speed	0,25 m/s [10 in/s] typ.	Max. operating frequency	15 kHz typ.
Operating temp. range	-55 °C to 120 °C [-67 °F to 250 °F]	Vibration	Mil-Std 202F Method 204D
Mounting thread	5/8-18 UNF-2A	Termination	20 AWG Teflon-insulated Leads

Test Condition Specifications

Parameter	Characteristic
Surface speed	25 m/s [1000 in/s]
Gear	20 DP (module 1.27)
Air gap	0,127 mm [0.005 in]
Load resistance	100 kOhm

Catalog Listing	Thread Length (A)	Weight		
3030S20	50 mm [2.0 in]	70 g [2.5 oz]		
3030S30	76 mm [3.0 in]	84 g [3.0 oz]		

Industrial VRS Magnetic Speed Sensors

5/8 INCH (M16*) SENSORS CONTINUED (All dimensions for reference only. mm/[in])

*Contact Honeywell for availability of metric mounting thread versions.

General Specifications

Parameter	Characteristic	Parameter	Characteristic
Min. output voltage	190 Vp-p	Inductance	450 mH max.
Coil resistance	910 Ohm to 1200 Ohm	Gear pitch range	24 DP (module 1.06) or coarser
Pole piece diameter	2,69 mm [0.106 in]	Optimum actuator	20 DP (module 1.27) ferrous metal gear
Min. surface speed	0,25 m/s [10 in/s] typ.	Max. operating frequency	15 kHz typ.
Operating temp. range	-55 °C to 120 °C [-67 °F to 250 °F]	Vibration	Mil-Std 202F Method 204D
Mounting thread	5/8-18 UNF-2A	Termination	20 AWG Teflon-insulated leads

Test Condition Specifications

Parameter	Characteristic
Surface speed	25 m/s [1000 in/s]
Gear	20 DP (module 1.27)
Air gap	0,127 mm [0.005 in]
Load resistance	100 kOhm

Catalog Listing	Weight	
3030H20	140 g [5.0 oz]	

General Specifications

Parameter	Characteristic	Parameter	Characteristic
Min. output voltage	190 Vp-p	Inductance	450 mH max.
Coil resistance	910 Ohm to 1200 Ohm	Gear pitch range	24 DP (module 1.06) or coarser
Pole piece diameter	2,69 mm [0.106 in]	Optimum actuator	20 DP (module 1.27) ferrous metal gear
Min. surface speed	0,25 m/s [10 in/s] typ.	Max. operating frequency	15 kHz typ.
Operating temp. range	-55 °C to 120 °C [-67 °F to 250 °F]	Vibration	Mil-Std 202F Method 204D
Mounting thread	5/8-18 UNF-2A	Termination	MS3106 connector

Test Condition Specifications

Parameter	Characteristic
Surface speed	25 m/s [1000 in/s]
Gear	20 DP (module 1.27)
Air gap	0,127 mm [0.005 in]
Load resistance	100 kOhm

Catalog Listing	Thread Length (A)	Weight	
3030A	35 mm 1.4 in]	70 g [2.5 oz]	
3030A25	63 mm [2.5 in]	84 g [3.5 oz]	

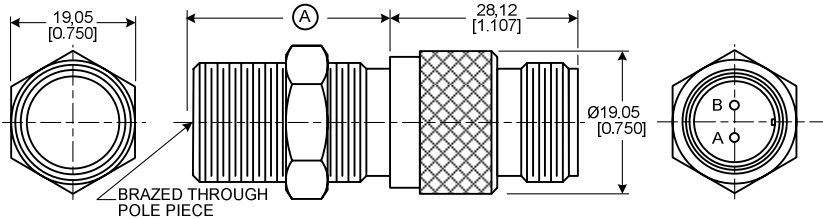
High Output

5/8 INCH (M16*) SEALED FRONT-END SENSORS (All dimensions for reference only. mm/[in])

*Contact Honeywell for availability of metric mounting thread versions.

HIGH RESISTANCE COILS FOR MAXIMUM OUTPUT VOLTAGE APPLICATIONS

General Specifications				Test Condition Specifications	
Parameter	Characteristic	Parameter	Characteristic	Parameter	Characteristic
Min. output voltage	175 Vp-p	Inductance	450 mH max.	Surface speed	25 m/s [1000 in/s]
Coil resistance	910 to 1200 Ohm	Gear pitch range	24 DP (module 1.06) ferrous metal gear	Gear	20 DP (module 1.27)
Pole piece diameter	2,69 mm [0.106 in]	Optimum actuator	--	Air gap	0,127 mm [0.005 in]
Minimum surface speed	0,25 m/s [10 in/s] typ.	Maximum operating frequency	15 kHz typ.	Load resistance	100 kOhm
Operating temp. range	-55 °C to 150 °C [-67 °F to 300 °F]	Vibration	Mil-Std 202F Method 204D		
Mounting thread	5/8-18 UNF-2A	Termination	MS3106 connector		

Catalog Listing	Thread Length (A)	Weight			
MA230SAN MA233SAN	28 mm [1.1 in] 76 mm [3.0 in]	70 g [2.0 oz] 98 g [3.5 oz]			

Industrial VRS Magnetic Speed Sensors

5/8 INCH (M16*) SEALED FRONT-END SENSORS (All dimensions for reference only. mm/[in])

*Contact Honeywell for availability of metric mounting thread versions.

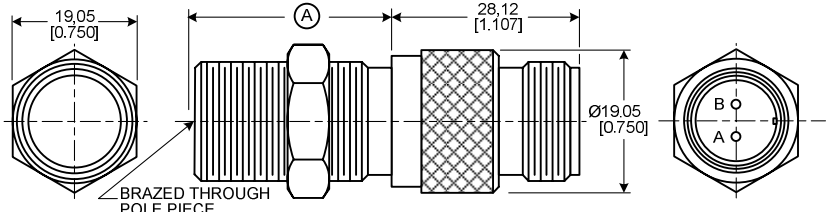
NOMINAL RESISTANCE COILS FOR LOW IMPEDANCE LOAD APPLICATIONS

General Specifications

Parameter	Characteristic	Parameter	Characteristic
Min. output voltage	60 Vp-p	Inductance	85 mH max.
Coil resistance	120 to 162 Ohm	Gear pitch range	12 DP (module 2.11) ferrous metal gear
Pole piece diameter	4,39 mm [0.173 in]	Optimum actuator	N/A
Minimum surface speed	0,38 m/s [15 in/s] typ.	Maximum operating frequency	40 kHz typ.
Operating temp. range	-55 °C to 150 °C [-67 °F to 300 °F]	Vibration	Mil-Std 202F Method 204D
Mounting thread	5/8-18 UNF-2A	Termination	MS3106 connector

Test Condition Specifications

Parameter	Characteristic
Surface speed	25 m/s [1000 in/s]
Gear	8 DP (module 3.17)
Air gap	0,127 mm [0.005 in]
Load resistance	1.25 kOhm

Catalog Listing	Thread Length (A)	Weight	
MA240SAN MA243SAN	28 mm [1.1 in] 76 mm [3.0 in]	70 g [2.0 oz] 98 g [3.5 oz]	

High Output

3/8 INCH (M12*) SENSORS (All dimensions for reference only. mm/[in])

*Contact Honeywell for availability of metric mounting thread versions.

General Specifications

Parameter	Characteristic	Parameter	Characteristic
Min. output voltage	55 Vp-p	Inductance	75 mH max.
Coil resistance	275 Ohm to 330 Ohm	Gear pitch range	26 DP (module 0.98) or coarser
Pole piece diameter	2,36 mm [0.093 in]	Optimum actuator	24 DP (module 1.06) ferrous metal gear
Minimum surface speed	0,38 m/s [15 in/s] typ.	Maximum operating frequency	40 kHz typ.
Operating temp. range	-40 °C to 107 °C [-40 °F to 225 °F]	Vibration	Mil-Std 202F Method 204D
Mounting thread	3/8-24 UNF-2A	Termination	24 AWG, vinyl-insulated leads

Test Condition Specifications

Parameter	Characteristic
Surface speed	25 m/s [1000 in/s]
Gear	20 DP (module 1.27)
Air gap	0,127 mm [0.005 in]
Load resistance	100 kOhm

Catalog Listing	Thread Length (A)	Weight	
3025A	20 mm [0.8 in]	28 g [1.0 oz]	
3020A17	44 mm [1.7 in]	35 g [1.2 oz]	
3020A35	88 mm [3.5 in]	42 g [1.5 oz]	

Catalog Listing	Thread Length (A)	Weight	
3025S13	30 mm [1.2 in]	28 g [1.0 oz]	

Industrial VRS Magnetic Speed Sensors

3/8 (M12*) SENSORS CONTINUED (All dimensions for reference only. mm/[in])

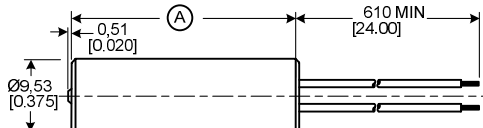
*Contact Honeywell for availability of metric mounting thread versions.

General Specifications

Parameter	Characteristic	Parameter	Characteristic
Min. output voltage	55 Vp-p	Inductance	75 mH max.
Coil resistance	275 Ohm to 330 Ohm	Gear pitch range	26 DP (module 0.98) or coarser
Pole piece diameter	2,36 mm [0.093 in]	Optimum actuator	24 DP (module 1.06) ferrous metal gear
Minimum surface speed	0,38 m/s [15 in/s] typ.	Maximum operating frequency	40 kHz typ.
Operating temp. range	-40 °C to 107 °C [-40 °F to 225 °F]	Vibration	Mil-Std 202F Method 204D
Mounting thread	3/8-24 UNF-2A	Termination	24 AWG, PVC-insulated leads

Test Condition Specifications

Parameter	Characteristic
Surface speed	25 m/s [1000 in/s]
Gear	20 DP (module 1.27)
Air gap	0,127 mm [0.005 in]
Load resistance	100 kOhm

Catalog Listing	Barrel Length (A)	Weight	
3025SS13	30 mm [1.2 in]	28 g [1.0 oz]	
3025SS23	63 mm [2.5 in]	42 g [1.5 oz]	

WARNING

PERSONAL INJURY

DO NOT USE these products as safety or emergency stop devices or in any other application where failure of the product could result in personal injury.

Failure to comply with these instructions could result in death or serious injury.

WARRANTY/REMEDY

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship. Honeywell's standard product warranty applies unless agreed to otherwise by Honeywell in writing; please refer to your order acknowledgement or consult your local sales office for specific warranty details. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace, at its option, without charge those items it finds defective. **The foregoing is buyer's sole remedy and is in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose. In no event shall Honeywell be liable for consequential, special, or indirect damages.**

While we provide application assistance personally, through our literature and the Honeywell web site, it is up to the customer to determine the suitability of the product in the application.

Specifications may change without notice. The information we supply is believed to be accurate and reliable as of this printing. However, we assume no responsibility for its use.

WARNING

MISUSE OF DOCUMENTATION

- The information presented in this product sheet is for reference only. Do not use this document as a product installation guide.
- Complete installation, operation, and maintenance information is provided in the instructions supplied with each product.

Failure to comply with these instructions could result in death or serious injury.

SALES AND SERVICE

Honeywell serves its customers through a worldwide network of sales offices, representatives and distributors. For application assistance, current specifications, pricing or name of the nearest Authorized Distributor, contact your local sales office or:

E-mail: info.sc@honeywell.com

Internet: www.honeywell.com/sensing

Phone and Fax:

Asia Pacific	+65 6355-2828
	+65 6445-3033 Fax
Europe	+44 (0) 1698 481481
	+44 (0) 1698 481676 Fax
Latin America	+1-305-805-8188
	+1-305-883-8257 Fax
USA/Canada	+1-800-537-6945
	+1-815-235-6847
	+1-815-235-6545 Fax

Automation and Control Solutions

Sensing and Control

Honeywell

1985 Douglas Drive North

Minneapolis, MN 55422

www.honeywell.com/sensing

005876-1-EN IL50 GLO Printed in USA
March 2007

Copyright © 2007 Honeywell International Inc. All rights reserved.

Honeywell

High Resolution Industrial VRS Magnetic Speed Sensors



DESCRIPTION

High Resolution VRS sensors are designed for use in applications where precise timing pulse is required, and/or fine pitch gears are used. Proper alignment of the sensor is required.

Passive VRS (Variable Reluctance Speed) Magnetic Speed sensors are simple, rugged devices that do not require an external voltage source for operation.

A permanent magnet in the sensor establishes a fixed magnetic field. The approach and passing of a ferrous metal target near the sensor's pole piece (sensing area) changes the flux of the magnetic field, dynamically changing its strength. This change in magnetic field strength induces a current into a coil winding which is attached to the output terminals.

FEATURES

- Self-powered operation
- Direct conversion of actuator speed to output frequency
- Simple installation
- No moving parts
- Designed for use over a wide range of speeds
- Adaptable to a wide variety of configurations
- Customized VRS products for unique speed sensing applications
- Housing diameters: 5/8 in (M16) 3/8 in (M12)
- Housing material/style: stainless steel threaded
- Terminations: MS3106 connector, preleaded
- Output voltages: 17 Vp-p to 170 Vp-p

The output signal of a VRS sensor is an ac voltage that varies in amplitude and wave frequency as the speed of the monitored device changes, and is usually expressed in peak to peak voltage (Vp-p).

One complete waveform (cycle) occurs as each target passes the sensor's pole piece. If a standard gear were used as a target, this output signal would resemble a sine wave if viewed on an oscilloscope.

Honeywell also offers VRS sensors for general purpose, high output, power output, high temperature and hazardous location applications, as well as low-cost molded versions.

POTENTIAL APPLICATIONS

- Engine RPM (revolutions per minute) measurement on aircraft, automobiles, boats, buses, trucks and rail vehicles
- Motor RPM measurement on drills, grinders, lathes and automatic screw machines
- Motor RPM measurement on precision camera, tape recording and motion picture equipment
- Process speed measurement on food, textile, paper, woodworking, printing, tobacco and pharmaceutical industry machinery
- Motor speed measurement of electrical generating equipment
- Speed measurement of pumps, blowers, mixers, exhaust and ventilating fans
- Flow measurement on turbine meters
- Wheel-slip measurement on autos and locomotives
- Gear speed measurement

High Resolution

5/8 INCH (M16*) SENSORS (All dimensions for reference only. mm/[in])

*Contact Honeywell for availability of metric mounting thread versions.

General Specifications

Parameter	Characteristic	Parameter	Characteristic
Min. output voltage	34 Vp-p	Inductance	25 mH max.
Coil resistance	45 Ohm to 85 Ohm	Gear pitch range	36 DP (module 0.07) or coarser
Chisel pole piece width	2,54 mm [0.010 in]	Optimum actuator	N/A
Min. surface speed	0,50 m/s [20 in/s] typ.	Max. operating frequency	50 kHz typ.
Operating temp. range	-55 °C to 120 °C [-67 °F to 250 °F]	Vibration	Mil-Std 202F Method 204D
Mounting thread	5/8-18 UNF-2A	Termination	MS3106 connector

Test Condition Specifications

Parameter	Characteristic
Surface speed	25 m/s [1000 in/s]
Gear	8 DP (module 3.17)
Air gap	0,127 mm [0.005 in]
Load resistance	1.25 kOhm

Catalog Listing	Weight		
3009AN	70 g [2.5 oz]		

General Specifications

Parameter	Characteristic	Parameter	Characteristic
Min. output voltage	170 Vp-p	Inductance	450 mH max.
Coil resistance	910 Ohm to 1200 Ohm	Gear pitch range	36 DP (module 0.07) or coarser
Chisel pole piece width	2,54 mm [0.010 in]	Optimum actuator	N/A
Min. surface speed	0,25 m/s [10 in/s] typ.	Max. operating frequency	15 kHz typ.
Operating temp. range	-55 °C to 120 °C [-67 °F to 250 °F]	Vibration	Mil-Std 202F Method 204D
Mounting thread	5/8-18 UNF-2A	Termination	MS3106 connector

Test Condition Specifications

Parameter	Characteristic
Surface speed	25 m/s [1000 in/s]
Gear	8 DP (module 3.17)
Air gap	0,127 mm [0.005 in]
Load resistance	1.25 kOhm

Catalog Listing	Weight		
3029AN	70 g [2.5 oz]		

Industrial VRS Magnetic Speed Sensors

5/8 INCH (M16*) SENSORS CONTINUED (All dimensions for reference only. mm/[in])

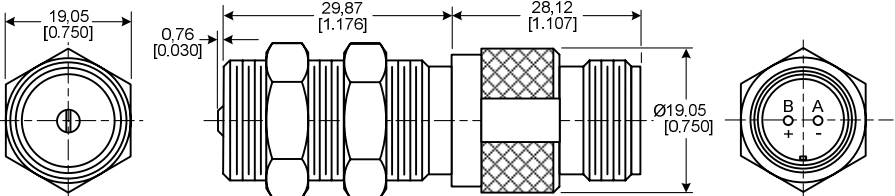
*Contact Honeywell for availability of metric mounting thread versions.

General Specifications

Parameter	Characteristic	Parameter	Characteristic
Min. output voltage	40 Vp-p	Inductance	85 mH max.
Coil resistance	120 Ohm to 162 Ohm	Gear pitch range	36 DP (module 0.07) or coarser
Chisel pole piece width	2,54 mm [0.010 in]	Optimum actuator	N/A
Min. surface speed	0,38 m/s [15 in/s] typ.	Max. operating frequency	40 kHz typ.
Operating temp. range	-55 °C to 120 °C [-67 °F to 250 °F]	Vibration	Mil-Std 202F Method 204D
Mounting thread	5/8-18 UNF-2A	Termination	MS3106 connector

Test Condition Specifications

Parameter	Characteristic
Surface speed	25 m/s [1000 in/s]
Gear	8 DP (module 3.17)
Air gap	0,127 mm [0.005 in]
Load resistance	1.25 kOhm

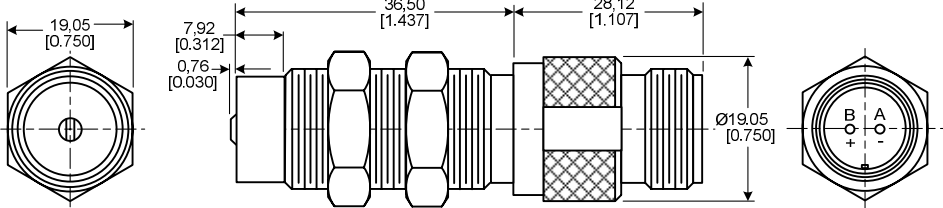
Catalog Listing	Weight		
3039AN	70 g [2.5 oz]		

General Specifications

Parameter	Characteristic	Parameter	Characteristic
Min. output voltage	80 Vp-p	Inductance	25 mH max.
Coil resistance	45 Ohm to 85 Ohm	Gear pitch range	24 DP (module 1.06) ferrous metal gear
Chisel pole piece width	1,14 mm [0.045 in]	Optimum actuator	N/A
Min. surface speed	0,50 m/s [20 in/s] typ.	Max. operating frequency	50 kHz typ.
Operating temp. range	-55 °C to 120 °C [-67 °F to 250 °F]	Vibration	Mil-Std 202F Method 204D
Mounting thread	5/8-18 UNF-2A	Termination	MS3106 connector

Test Condition Specifications

Parameter	Characteristic
Surface speed	25 m/s [1000 in/s]
Gear	8 DP (module 3.17)
Air gap	0,127 mm [0.005 in]
Load resistance	1.25 kOhm

Catalog Listing	Weight		
3044A	70 g [2.5 oz]		

High Resolution

5/8 INCH (M16*) SENSORS CONTINUED (All dimensions for reference only. mm/[in])

*Contact Honeywell for availability of metric mounting thread versions.

General Specifications

Parameter	Characteristic	Parameter	Characteristic
Min. output voltage	300 Vp-p	Inductance	450 mH max.
Coil resistance	910 Ohm to 1200 Ohm	Gear pitch range	24 DP (module 1.06) ferrous metal gear
Chisel pole piece width	1,14 mm [0.045 in]	Optimum actuator	N/A
Min. surface speed	0,38 m/s [15 in/s] typ.	Max. operating frequency	15 kHz typ.
Operating temp. range	-55 °C to 120 °C [-67 °F to 250 °F]	Vibration	Mil-Std 202F Method 204D
Mounting thread	5/8-18 UNF-2A	Termination	MS3106 connector

Test Condition Specifications

Parameter	Characteristic
Surface speed	25 m/s [1000 in/s]
Gear	8 DP (module 3.17)
Air gap	0,127 mm [0.005 in]
Load resistance	1.25 kOhm

Catalog Listing	Weight		
3045A	70 g [2.5 oz]		

General Specifications

Parameter	Characteristic	Parameter	Characteristic
Min. output voltage	65 Vp-p	Inductance	85 mH max.
Coil resistance	120 Ohm to 162 Ohm	Gear pitch range	24 DP (module 1.06) ferrous metal gear
Chisel pole piece width	1,14 mm [0.045 in]	Optimum actuator	N/A
Min. surface speed	0,38 m/s [15 in/s] typ.	Max. operating frequency	40 kHz typ.
Operating temp. range	-55 °C to 120 °C [-67 °F to 250 °F]	Vibration	Mil-Std 202F Method 204D
Mounting thread	5/8-18UNF-2A	Termination	MS3106 connector

Test Condition Specifications

Parameter	Characteristic
Surface speed	25 m/s [1000 in/s]
Gear	8 DP (module 3.17)
Air gap	0,127 mm [0.005 in]
Load resistance	1.25 kOhm

Catalog Listing	Weight		
3046A	70 g [2.5 oz]		

Industrial VRS Magnetic Speed Sensors

3/8 INCH (M12*) SENSORS (All dimensions for reference only. mm/[in])

*Contact Honeywell for availability of metric mounting thread versions.

LOW RESISTANCE COILS FOR HIGH FREQUENCY APPLICATIONS

General Specifications

Parameter	Characteristic	Parameter	Characteristic
Min. output voltage	17 Vp-p	Inductance	15 mH max.
Coil resistance	45 Ohm to 65 Ohm	Gear pitch range	36 DP (module 0.70) or coarser
Chisel pole piece width	0,25 mm [0.010 in]	Optimum actuator	32 DP (module 0.80)
Min. surface speed	0,75 m/s [30 in/s] typ.	Max. operating frequency	60 kHz typ.
Operating temp. range	-40 °C to 107 °C [-40 °F to 225 °F]	Vibration	Mil-Std 202F Method 204D
Mounting thread	3/8-24 UNF-2A	Termination	24 AWG PVC-insulated leads

Test Condition Specifications

Parameter	Characteristic
Surface speed	25 m/s [1000 in/s]
Gear	20 DP (module 1.27)
Air gap	0,127 mm [0.005 in]
Load resistance	100 kOhm

Catalog Listing	Weight	
3014A	28 g [1.0 oz]	<p>Technical drawing of the 3014A sensor. The front view shows a hexagonal mounting flange with a central hole. The side view shows the sensor body with dimensions: 14,27 [0.562] for the flange width, 0,51 [0.020] for the mounting thread, 31,75 [1.437] for the total length, 20,62 [0.812] for the mounting flange length, 11,10 [0.437] for the sensor body length, 1,57 [0.062] for the lead length, 610 [24.00] for the total lead length, and 6,35 [0.25] for the lead diameter. The mounting thread is 3/8-24 UNF-2A.</p>

HIGH RESISTANCE COILS FOR HIGH FREQUENCY APPLICATIONS

General Specifications

Parameter	Characteristic	Parameter	Characteristic
Min. output voltage	55 Vp-p	Inductance	75 mH max.
Coil resistance	275 Ohm to 330 Ohm	Gear pitch range	32 DP (module 0.80) or coarser
Chisel pole piece width	0,25 mm [0.010 in]	Optimum actuator	N/A
Min. surface speed	0,38 m/s [15 in/s] typ.	Max. operating frequency	40 kHz typ.
Operating temp. range	-40 °C to 107 °C [-40 °F to 225 °F]	Vibration	Mil-Std 202F Method 204D
Mounting thread	3/8-24 UNF-2A	Termination	24 AWG PVC-insulated Leads

Test Condition Specifications

Parameter	Characteristic
Surface speed	25 m/s [1000 in/s]
Gear	20 DP (module 1.27)
Air gap	0,127 mm [0.005 in]
Load resistance	100 kOhm

Catalog Listing	Weight	
3024A	28 g [1.0 oz]	<p>Technical drawing of the 3024A sensor. The front view shows a hexagonal mounting flange with a central hole. The side view shows the sensor body with dimensions: 14,27 [0.562] for the flange width, 0,51 [0.020] for the mounting thread, 31,75 [1.437] for the total length, 20,62 [0.812] for the mounting flange length, 11,10 [0.437] for the sensor body length, 1,57 [0.062] for the lead length, 610 [24.00] for the total lead length, and 6,35 [0.25] for the lead diameter. The mounting thread is 3/8-24 UNF-2A.</p>



High Resolution

THIS PAGE INTENTIONALLY LEFT BLANK.

Industrial VRS Magnetic Speed Sensors

THIS PAGE INTENTIONALLY LEFT BLANK.

WARNING

PERSONAL INJURY

DO NOT USE these products as safety or emergency stop devices or in any other application where failure of the product could result in personal injury.

Failure to comply with these instructions could result in death or serious injury.

WARRANTY/REMEDY

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship. Honeywell's standard product warranty applies unless agreed to otherwise by Honeywell in writing; please refer to your order acknowledgement or consult your local sales office for specific warranty details. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace, at its option, without charge those items it finds defective. **The foregoing is buyer's sole remedy and is in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose. In no event shall Honeywell be liable for consequential, special, or indirect damages.**

While we provide application assistance personally, through our literature and the Honeywell web site, it is up to the customer to determine the suitability of the product in the application.

Specifications may change without notice. The information we supply is believed to be accurate and reliable as of this printing. However, we assume no responsibility for its use.

WARNING

MISUSE OF DOCUMENTATION

- The information presented in this product sheet is for reference only. Do not use this document as a product installation guide.
- Complete installation, operation, and maintenance information is provided in the instructions supplied with each product.

Failure to comply with these instructions could result in death or serious injury.

SALES AND SERVICE

Honeywell serves its customers through a worldwide network of sales offices, representatives and distributors. For application assistance, current specifications, pricing or name of the nearest Authorized Distributor, contact your local sales office or:

E-mail: info.sc@honeywell.com

Internet: www.honeywell.com/sensing

Phone and Fax:

Asia Pacific	+65 6355-2828
	+65 6445-3033 Fax
Europe	+44 (0) 1698 481481
	+44 (0) 1698 481676 Fax
Latin America	+1-305-805-8188
	+1-305-883-8257 Fax
USA/Canada	+1-800-537-6945
	+1-815-235-6847
	+1-815-235-6545 Fax

Automation and Control Solutions

Sensing and Control

Honeywell

1985 Douglas Drive North

Minneapolis, MN 55422

www.honeywell.com/sensing

005878-1-EN IL50 GLO Printed in USA
March 2007

Copyright © 2007 Honeywell International Inc. All rights reserved.

Honeywell

High Temperature Industrial VRS Magnetic Speed Sensors



DESCRIPTION

High Temperature VRS sensors are designed for use in applications where the sensor is exposed to temperatures up to 260 °C [450 °F]. Sealed Front-End versions are available for applications where the sensor is exposed to fluids, lubricants or adverse environmental conditions.

Passive VRS (Variable Reluctance Speed) Magnetic Speed sensors are simple, rugged devices that do not require an external voltage source for operation.

A permanent magnet in the sensor establishes a fixed magnetic field. The approach and passing of a ferrous metal target near the sensor's pole piece (sensing area) changes the flux of the magnetic field, dynamically changing its strength. This change in magnetic field strength induces a current into a coil winding which is attached to the output terminals.

FEATURES

- Self-powered operation
- Direct conversion of actuator speed to output frequency
- Simple installation
- No moving parts
- Designed for use over a wide range of speeds
- Adaptable to a wide variety of configurations
- Customized VRS products for unique speed sensing applications
- Housing diameters: 5/8 in (M16), 3/8 in (M12), 1/4 in (8M)
- Housing material/style: stainless steel threaded
- Terminations: MS3106 connector, preleaded
- Output voltages: 4.7 Vp-p to 125 Vp-p

The output signal of a VRS sensor is an ac voltage that varies in amplitude and wave frequency as the speed of the monitored device changes, and is usually expressed in peak to peak voltage (Vp-p).

One complete waveform (cycle) occurs as each target passes the sensor's pole piece. If a standard gear were used as a target, this output signal would resemble a sine wave if viewed on an oscilloscope.

Honeywell also offers VRS sensors for general purpose, high output, power output, high resolution and hazardous location applications, as well as low-cost molded OEM versions.

POTENTIAL APPLICATIONS

- Engine RPM (revolutions per minute) measurement on aircraft, automobiles, boats, buses, trucks and rail vehicles
- Motor RPM measurement on drills, grinders, lathes and automatic screw machines
- Motor RPM measurement on precision camera, tape recording and motion picture equipment
- Process speed measurement on food, textile, paper, woodworking, printing, tobacco and pharmaceutical industry machinery
- Motor speed measurement of electrical generating equipment
- Speed measurement of pumps, blowers, mixers, exhaust and ventilating fans
- Flow measurement on turbine meters
- Wheel-slip measurement on autos and locomotives
- Gear speed measurement

High Temperature

5/8 INCH (M16*) SENSORS (All dimensions for reference only. mm/[in])

*Contact Honeywell for availability of metric mounting thread versions.

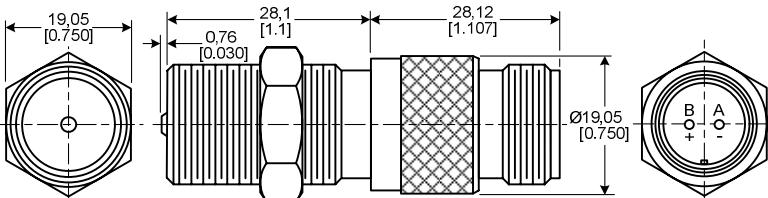
LOW RESISTANCE COILS FOR HIGH FREQUENCY APPLICATIONS

General Specifications

Parameter	Characteristic	Parameter	Characteristic
Min. output voltage	25 Vp-p	Inductance	30 mH max.
Coil resistance	65 Ohm typ.	Gear pitch range	24 DP (module 1.06) or coarser
Pole piece diameter	2,69 mm [0.106 in]	Optimum actuator	20 DP (module 1.27)
Min. surface speed	0,50 m/s [20 in/s] typ.	Max. operating frequency	50 kHz typ.
Operating temp. range	-55 °C to 230 °C [-67 °F to 450 °F]	Vibration	N/A
Mounting thread	5/8-18 UNF-2A	Termination	MS3106 connector

Test Condition Specifications

Parameter	Characteristic
Surface speed	25 m/s [1000 in/s]
Gear	20 DP (module 1.27)
Air gap	0,127 mm [0.005 in]
Load resistance	100 kOhm

Catalog Listing	Weight		
3010HTB	70 g [2.5 oz]		

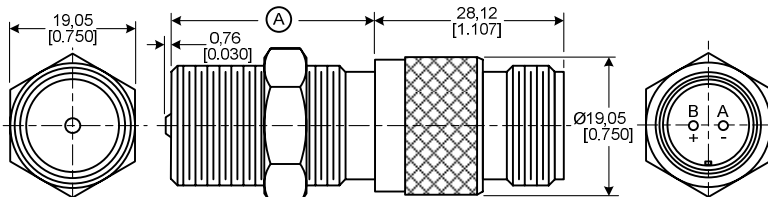
HIGH RESISTANCE COILS FOR MAXIMUM OUTPUT VOLTAGE APPLICATIONS

General Specifications

Parameter	Characteristic	Parameter	Characteristic
Min. output voltage	125 Vp-p	Inductance	450 mH max.
Coil resistance	1055 Ohm typ.	Gear pitch range	24 DP (module 1.06) or coarser
Pole piece diameter	2,69 mm [0.106 in]	Optimum actuator	20 DP (module 1.27)
Min. surface speed	0,25 m/s [10 in/s] typ.	Max. operating frequency	15 kHz typ.
Operating temp. range	-55 °C to 230 °C [-67 °F to 450 °F]	Vibration	N/A
Mounting thread	5/8-18 UNF-2A	Termination	MS3106 connector

Test Condition Specifications

Parameter	Characteristic
Surface speed	25 m/s [1000 in/s]
Gear	20 DP (module 1.27)
Air gap	0,127 mm [0.005 in]
Load resistance	100 kOhm

Catalog Listing	Thread Length (A)	Weight		
3030HTB 3030HTB25	28 mm [1.1 in] 63 mm [2.5 in]	70 g [2.5 oz] 84 g [3.0 oz]		

Industrial VRS Magnetic Speed Sensors

5/8 INCH (M16*) SENSORS CONTINUED (All dimensions for reference only. mm/[in])

*Contact Honeywell for availability of metric mounting thread versions.

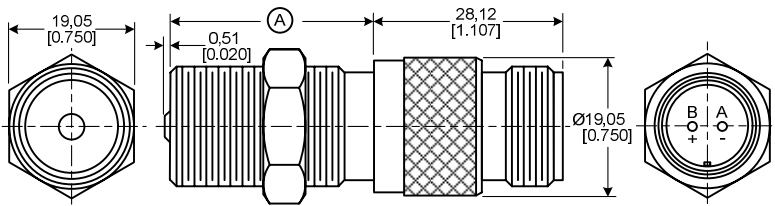
NOMINAL RESISTANCE COILS FOR LOW IMPEDANCE LOAD APPLICATIONS

General Specifications

Parameter	Characteristic	Parameter	Characteristic
Min. output voltage	45 Vp-p	Inductance	85 mH max.
Coil resistance	141 Ohm typ.	Gear pitch range	12 DP (module 2.11) or coarser
Pole piece diameter	4,75 mm [0.187 in]	Optimum actuator	8 DP (module 3.17)
Min. surface speed	0,38 m/s [15 in/s] typ.	Max. operating frequency	40 kHz typ.
Operating temp. range	-55 °C to 230 °C [-67 °F to 450 °F]	Vibration	N/A
Mounting Thread	5/8-18 UNF-2A	Termination	MS3106 Connector

Test Condition Specifications

Parameter	Characteristic
Surface speed	25 m/s [1000 in/s]
Gear	8 DP (module 3.17)
Air gap	0,127 mm [0.005 in]
Load resistance	1.25 kOhm

Catalog Listing	Thread Length (A)	Weight	
3040HTB	28 mm [1.1 in]	70 g [2.5 oz]	
3040HTB25	63 mm [2.5 in]	84 g [3.0 oz]	

High Temperature

5/8 INCH SEALED FRONT-END SENSORS (All dimensions for reference only. mm/[in])
(No metric available.)

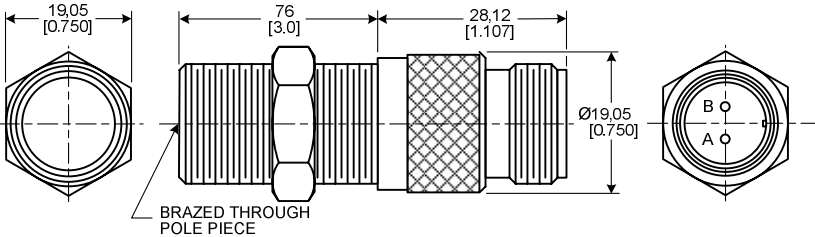
NOMINAL RESISTANCE COILS FOR LOW IMPEDANCE LOADS APPLICATIONS
General Specifications

Parameter	Characteristic	Parameter	Characteristic
Min. output voltage	60 Vp-p	Inductance	85 mH max.
Coil resistance	120 Ohm to 162 Ohm	Gear pitch range	12 DP (module 2.11) or coarser
Pole piece diameter	4,39 mm [0.173 in]	Optimum actuator	8 DP (module 3.17)
Min. surface speed	0,38 m/s [15 in/s] typ.	Max. operating frequency	40 kHz typ.
Operating temp. range	-54 °C to 220 °C [-65 °F to 428 °F]	Vibration	N/A
Mounting Thread	5/8-18 UNF-2A	Termination	MS3106 connector

Test Condition Specifications

Parameter	Characteristic
Surface speed	25 m/s [1000 in/s]
Gear	8 DP (module 3.17)
Air gap	0,127 mm [0.005 in]
Load resistance	1.25 kOhm

Catalog Listing	Weight
MA243HT	98 g [3.5 oz]



Industrial VRS Magnetic Speed Sensors

3/8 INCH (M12*) SENSORS (All dimensions for reference only. mm/[in])

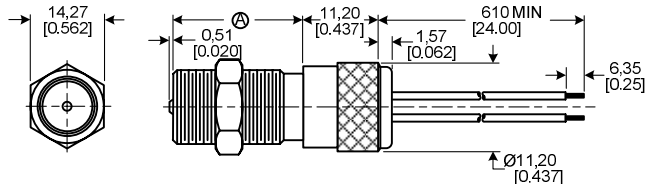
*Contact Honeywell for availability of metric mounting thread versions.

General Specifications

Parameter	Characteristic	Parameter	Characteristic
Min. output voltage	15 Vp-p	Inductance	31 mH max.
Coil resistance	110 Ohm max.	Gear pitch range	26 DP (module 0.98) or coarser
Pole piece diameter	2,36 mm [0.093 in]	Optimum actuator	24 DP (module 1.06) ferrous metal gear
Min. surface speed	0,75 m/s [20 in/s] typ.	Max. operating frequency	50 kHz typ.
Operating temp. range	-40 °C to 205 °C [-40 °F to 400 °F]	Vibration	N/A
Mounting thread	3/8-24 UNF-2A	Termination	24 AWG Teflon-insulated leads

Test Condition Specifications

Parameter	Characteristic
Surface speed	25 m/s [1000 in/s]
Gear	20 DP (module 1.27)
Air gap	0,127 mm [0.005 in]
Load resistance	100 kOhm

Catalog Listing	Thread Length (A)	Weight	
3015HTB 3015HTB15	20 mm [0.8 in] 38 mm [1.5 in]	28 g [1.0 oz] 42 g [1.5 oz]	

High Temperature

1/4 INCH (M8*) MINIATURE SENSORS (All dimensions for reference only. mm/[in])

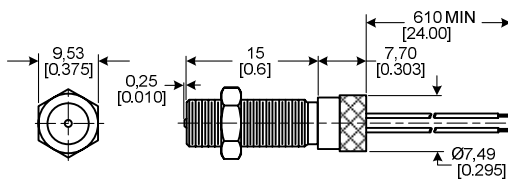
*Contact Honeywell for availability of metric mounting thread versions.

General Specifications

Parameter	Characteristic	Parameter	Characteristic
Min. output voltage	4.7 Vp-p	Inductance	13 mH max.
Coil resistance	137 Ohm max.	Gear pitch range	36 DP (module 0.70) or coarser
Pole piece diameter	1 mm [0.040 in]	Optimum actuator	28 DP (Module 0.90) ferrous metal gear
Min. surface speed	0,89 m/s [35 in/s] typ.	Max. operating frequency	70 kHz typ.
Operating temp. range	-40 °C to 230 °C [-40 °F to 450 °F]	Vibration	Mil-Std 202F Method 204D
Mounting thread	1/4-40 UNS-2A	Termination	30 AWG Teflon- Insulated Leads

Test Condition Specifications

Parameter	Characteristic
Surface speed	25 m/s [1000 in/s]
Gear	20 DP (module 1.27)
Air gap	0,127 mm [0.005 in]
Load resistance	100 kOhm

Catalog Listing	Weight	
3055A	14 g [0.5 oz]	

Industrial VRS Magnetic Speed Sensors

1/4 INCH SEALED FRONT-END SENSORS (All dimensions for reference only. mm/[in])

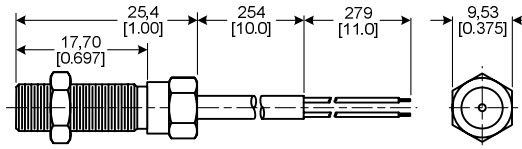
(No metric available.)

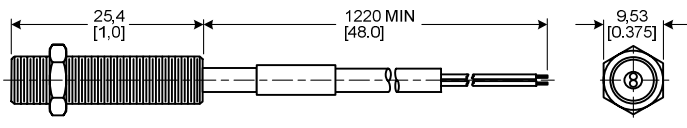
General Specifications

Parameter	Characteristic	Parameter	Characteristic
Min. output voltage	5.2 Vp-p	Inductance	85 mH max.
Coil resistance	20 Ohm to 45 Ohm	Gear pitch range	36 DP (module 0.70) or coarser
Pole piece diameter	1 mm [0.040 in]	Optimum actuator	28 DP (module 0.90) ferrous metal gear
Min. surface speed	0,89 m/s [35 in/s] typ.	Max. operating frequency	70 kHz typ.
Operating temp. range	-73 °C to 230 °C [-100 °F to 450 °F]	Vibration	Mil-Std 202F Method 204D
Mounting Thread	1/4-40 UNS-2A	Termination	28 AWG Teflon- insulated leads

Test Condition Specifications

Parameter	Characteristic
Surface speed	25 m/s [1000 in/s]
Gear	20 DP (module 1.27)
Air gap	0,127 mm [0.005 in]
Load resistance	100 kOhm

Catalog Listing	Weight	
MA3055	28 g [1 oz]	

Catalog Listing	Weight	
MA3055S10	28 g [1 oz]	

WARNING

PERSONAL INJURY

DO NOT USE these products as safety or emergency stop devices or in any other application where failure of the product could result in personal injury.

Failure to comply with these instructions could result in death or serious injury.

WARRANTY/REMEDY

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship. Honeywell's standard product warranty applies unless agreed to otherwise by Honeywell in writing; please refer to your order acknowledgement or consult your local sales office for specific warranty details. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace, at its option, without charge those items it finds defective. **The foregoing is buyer's sole remedy and is in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose. In no event shall Honeywell be liable for consequential, special, or indirect damages.**

While we provide application assistance personally, through our literature and the Honeywell web site, it is up to the customer to determine the suitability of the product in the application.

Specifications may change without notice. The information we supply is believed to be accurate and reliable as of this printing. However, we assume no responsibility for its use.

WARNING

MISUSE OF DOCUMENTATION

- The information presented in this product sheet is for reference only. Do not use this document as a product installation guide.
- Complete installation, operation, and maintenance information is provided in the instructions supplied with each product.

Failure to comply with these instructions could result in death or serious injury.

SALES AND SERVICE

Honeywell serves its customers through a worldwide network of sales offices, representatives and distributors. For application assistance, current specifications, pricing or name of the nearest Authorized Distributor, contact your local sales office or:

E-mail: info.sc@honeywell.com

Internet: www.honeywell.com/sensing

Phone and Fax:

Asia Pacific	+65 6355-2828
	+65 6445-3033 Fax
Europe	+44 (0) 1698 481481
	+44 (0) 1698 481676 Fax
Latin America	+1-305-805-8188
	+1-305-883-8257 Fax
USA/Canada	+1-800-537-6945
	+1-815-235-6847
	+1-815-235-6545 Fax

Automation and Control Solutions

Sensing and Control

Honeywell

1985 Douglas Drive North

Minneapolis, MN 55422

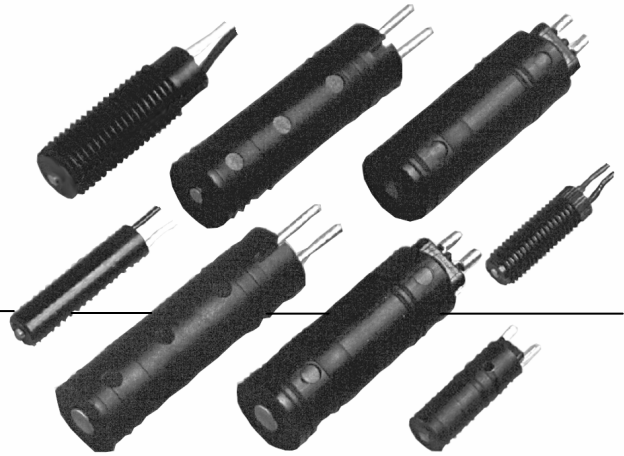
www.honeywell.com/sensing

005877-1-EN IL50 GLO Printed in USA
March 2007

Copyright © 2007 Honeywell International Inc. All rights reserved.

Honeywell

Low-Cost Molded Industrial VRS Magnetic Speed Sensors



DESCRIPTION

Low-Cost Molded VRS Sensors are designed for use in OEM (Original Equipment Manufacturer) applications.

Passive VRS (Variable Reluctance Speed) Magnetic Speed sensors are simple, rugged devices that do not require an external voltage source for operation.

A permanent magnet in the sensor establishes a fixed magnetic field. The approach and passing of a ferrous metal target near the sensor's pole piece (sensing area) changes the flux lines of the magnetic field, dynamically changing its strength. This change in magnetic field strength induces a current into a coil winding which is attached to the output terminals.

FEATURES

- Self-powered operation
- Direct conversion of actuator speed to output frequency
- Simple installation
- No moving parts
- Designed for use over a wide range of speeds
- Adaptable to a wide variety of configurations
- Customized VRS products for unique speed sensing applications
- Housing diameters: 0.505 in, 7/16 in, 0.292 in, 1/4 in
- Housing materials/styles: plastic smooth or threaded
- Terminations: Crimp, pin, preleaded
- Output voltages: 10 Vp-p to 190 Vp-p

The output signal of a VRS sensor is an ac voltage that varies in amplitude and wave frequency as the speed of the monitored device changes, and is usually expressed in peak to peak voltage (Vp-p).

One complete waveform (cycle) occurs as each target passes the sensor's pole piece. If a standard gear were used as a target, this output signal would resemble a sine wave if viewed on an oscilloscope.

Honeywell also offers VRS sensors for general purpose, high output, power output, high resolution and high temperature, as well as hazardous location applications.

POTENTIAL APPLICATIONS

- Engine RPM (revolutions per minute) measurement on aircraft, automobiles, boats, buses, trucks and rail vehicles
- Motor RPM measurement on drills, grinders, lathes and automatic screw machines
- Motor RPM measurement on precision camera, tape recording and motion picture equipment
- Process speed measurement on food, textile, paper, woodworking, printing, tobacco and pharmaceutical industry machinery
- Motor speed measurement of electrical generating equipment
- Speed measurement of pumps, blowers, mixers, exhaust and ventilating fans
- Flow measurement on turbine meters
- Wheel-slip measurement on autos and locomotives
- Gear speed measurement

Low-Cost Molded

0.505 INCH SENSORS (All dimensions for reference only. mm/[in])

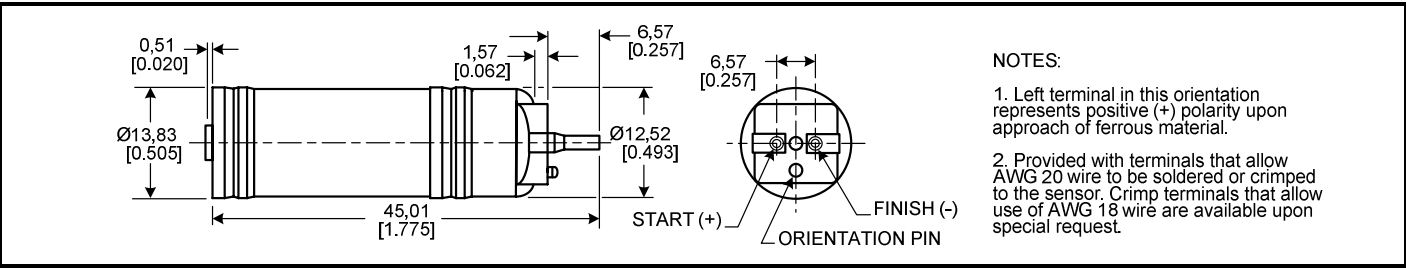
Catalog Listing: 2040C (For 230 °C [450 °F] capability, order 2040CHT.)

General Specifications

Parameter	Characteristic	Parameter	Characteristic
Min. output voltage	115 Vp-p	Inductance	85 mH max.
Max. coil resistance	120 Ohm to 162 Ohm	Gear pitch range	12 DP (module 2.11) or coarser
Pole piece diameter	4,75 mm [0.187 in]	Operating temp. range	-55 °C to 120 °C [-67 °F to 250 °F]
Weight	28 g [1.0 oz]	Termination	Crimp terminals

Test Condition Specifications

Parameter	Characteristic
Surface speed	25 m/s [1000 in/s]
Gear	8 DP (module 3.17)
Air gap	0,127 mm [0.005 in]
Load resistance	100 kOhm



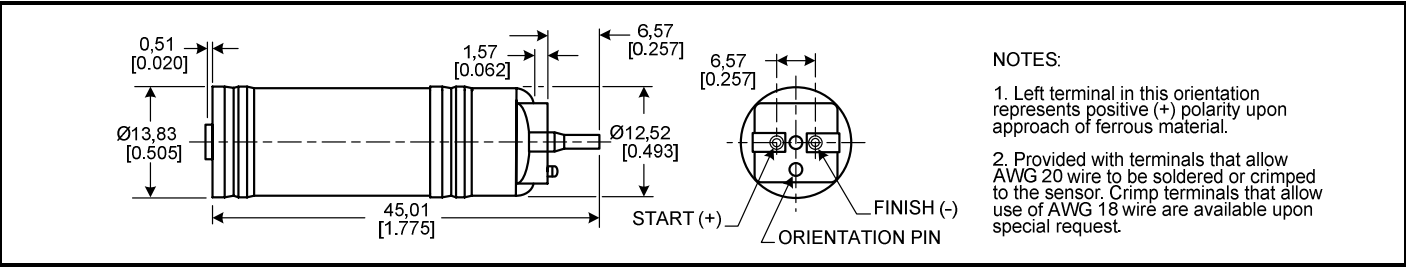
Catalog Listing: 2030C

General Specifications

Parameter	Characteristic	Parameter	Characteristic
Min. output voltage	190 Vp-p	Inductance	400 mH max.
Max. coil resistance	910 Ohm to 1200 Ohm	Gear pitch range	24 DP (module 1.06) or coarser
Pole piece diameter	2.69 mm [0.106 in]	Operating temp. range	-55 °C to 120 °C [-67 °F to 250 °F]
Weight	28 g [1.0 oz]	Termination	Crimp terminals

Test Condition Specifications

Parameter	Characteristic
Surface speed	25 m/s [1000 in/s]
Gear	20 DP (module 1.27)
Air gap	0,127 mm [0.005 in]
Load resistance	100 kOhm



Industrial VRS Magnetic Speed Sensors

0.505 INCH SENSORS CONTINUED (All dimensions for reference only. mm/[in])

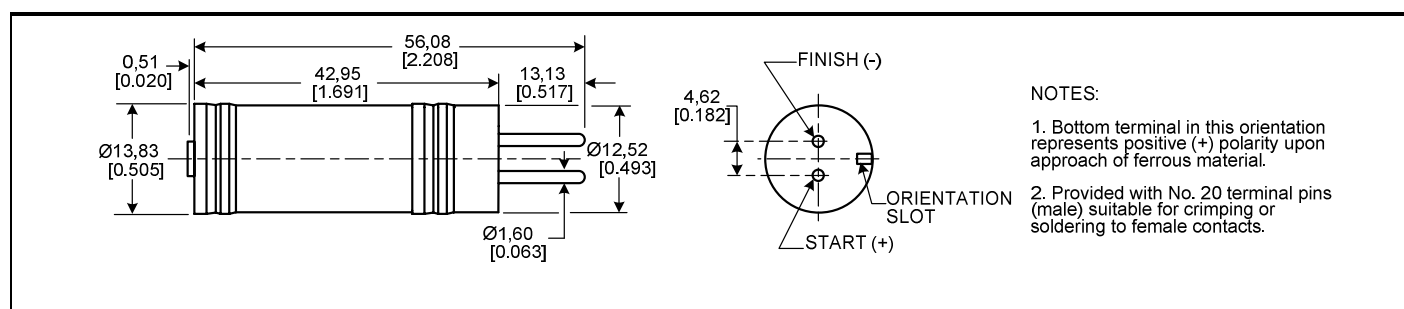
Catalog Listing: 2030P (For 230 °C [450 °F] capability, order 2030PHT.)

General Specifications

Parameter	Characteristic	Parameter	Characteristic
Min. output voltage	190 Vp-p	Inductance	400 mH max.
Max. coil resistance	910 Ohm to 1200 Ohm	Gear pitch range	24 DP (module 1.06) or coarser
Pole piece diameter	2.69 mm [0.106 in]	Operating temp. range	-55 °C to 120 °C [-67 °F to 250 °F]
Weight	28 g [1.0 oz]	Termination	Pin terminals

Test Condition Specifications

Parameter	Characteristic
Surface speed	25 m/s [1000 in/s]
Gear	20 DP (module 1.27)
Air gap	0,127 mm [0.005 in]
Load resistance	100 kOhm



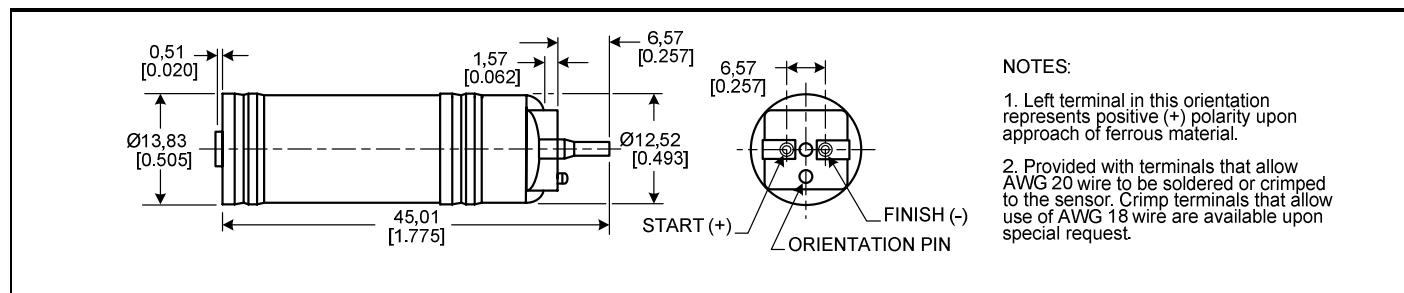
Catalog Listing: 2010C (For 230 °C [450 °F] capability, order 2010CHT.)

General Specifications

Parameter	Characteristic	Parameter	Characteristic
Min. output voltage	40 Vp-p	Inductance	25 mH max.
Max. coil resistance	45 Ohm to 85 Ohm	Gear pitch range	24 DP (module 1.06) or coarser
Pole piece diameter	2.69 mm [0.106 in]	Operating temp. range	-55 °C to 120 °C [-67 °F to 250 °F]
Weight	28 g [1.0 oz]	Termination	Crimp terminals

Test Condition Specifications

Parameter	Characteristic
Surface speed	25 m/s [1000 in/s]
Gear	20 DP (module 1.27)
Air gap	0,127 mm [0.005 in]
Load resistance	100 kOhm



Low-Cost Molded

0.292 INCH SENSORS (All dimensions for reference only. mm/[in])

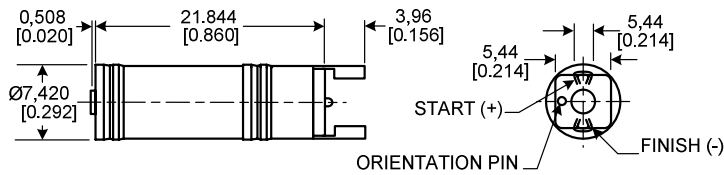
Catalog Listing: 2025C

General Specifications

Parameter	Characteristic	Parameter	Characteristic
Min. output voltage	55 Vp-p	Inductance	75 mH max.
Max. coil resistance	390 Ohm	Gear pitch range	26 DP (module 0.98) or coarser
Pole piece diameter	2.36 mm [0.093] in	Operating temp. range	-40 °C to 225 °C [-40 °F to 107 °F]
Weight	28 g [1.0 oz]	Termination	Crimp terminals

Test Condition Specifications

Parameter	Characteristic
Surface speed	25 m/s [1000 in/s]
Gear	20 DP (module 1.27)
Air gap	0,127 mm [0.005 in]
Load resistance	100 kOhm



- NOTES:
1. Top terminal pin in this orientation represents positive (+) polarity upon approach of ferrous material.
 2. Provided with crimp terminals that allow AWG 24 wire to be soldered or crimped to the sensor..

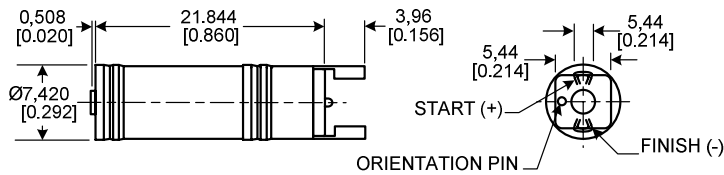
Catalog Listing: 2015C

General Specifications

Parameter	Characteristic	Parameter	Characteristic
Min. output voltage	20 Vp-p	Inductance	15 mH max.
Max. coil resistance	80 Ohm	Gear pitch range	26 DP (module 0.98) or coarser
Pole piece diameter	2.36 mm [0.093] in	Operating temp. range	-40 °C to 225 °C [-40 °F to 107 °F]
Weight	28 g [1.0 oz]	Termination	Crimp terminals

Test Condition Specifications

Parameter	Characteristic
Surface speed	25 m/s [1000 in/s]
Gear	20 DP (module 1.27)
Air gap	0,127 mm [0.005 in]
Load resistance	100 kOhm



- NOTES:
1. Top terminal pin in this orientation represents positive (+) polarity upon approach of ferrous material.
 2. Provided with crimp terminals that allow AWG 24 wire to be soldered or crimped to the sensor..

Industrial VRS Magnetic Speed Sensors

7/16 INCH SENSORS

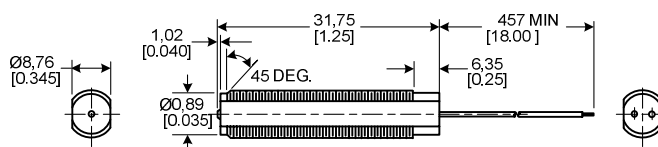
Catalog Listing: 3022

General Specifications

Parameter	Characteristic	Parameter	Characteristic
Min. output voltage	17.5 Vp-p	Inductance	9 mH max.
Max. coil resistance	54 Ohm	Gear pitch range	26 DP (module 0.98) or coarser
Pole piece diameter	2.36 mm [0.093] in	Operating temp. range	-18 °C to 93 °C [0 °F to 200 °F]
Weight	11 g [0.4 oz]	Termination	22 AWG PVC- insulated leads
Mounting thread	7/16-20 UNF-2A		

Test Condition Specifications

Parameter	Characteristic
Surface speed	25 m/s [1000 in/s]
Gear	20 DP (module 1.27)
Air gap	0,127 mm [0.005 in]
Load resistance	100 kOhm



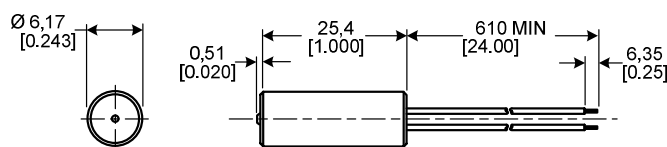
Catalog Listing: 302662

General Specifications

Parameter	Characteristic	Parameter	Characteristic
Min. output voltage	10 Vp-p	Inductance	11 mH max.
Max. coil resistance	130 Ohm	Gear pitch range	32 DP (module 0.80) or coarser
Pole piece diameter	1,83 mm [0.072 in]	Operating temp. range	-40 °C to 107 °C [-40 °F to 225 °F]
Weight	4.2 g [15 oz]	Termination	26 AWG PVC- insulated leads

Test Condition Specifications

Parameter	Characteristic
Surface speed	25 m/s [1000 in/s]
Gear	20 DP (module 1.27)
Air gap	0,127 mm [0.005 in]
Load resistance	100 kOhm





Low-Cost Molded

1/4 INCH SENSOR

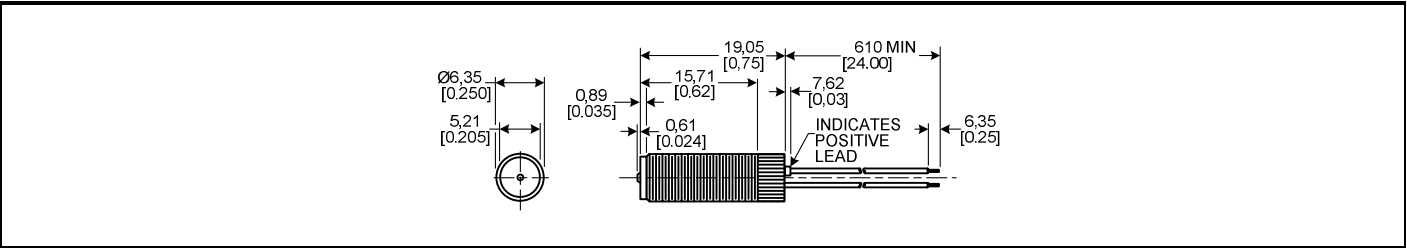
Catalog Listing: 302362

General Specifications

Parameter	Characteristic	Parameter	Characteristic
Min. output voltage	10 Vp-p	Inductance	11 mH max.
Max. coil resistance	130 Ohm	Gear pitch range	32 DP (module 0.80) or coarser
Pole piece diameter	1,83 mm [0.072 in]	Operating temp. range	-18 °C to 60 °C [0 °F to 140 °F]
Weight	4.2 g [15 oz]	Termination	26 AWG PVC-insulated leads
Mounting thread	1/4 -28 UNF-1A		

Test Condition Specifications

Parameter	Characteristic
Surface speed	25 m/s [1000 in/s]
Gear	20 DP (module 1.27)
Air gap	0,127 mm [0.005 in]
Load resistance	100 kOhm



Industrial VRS Magnetic Speed Sensors

THIS PAGE INTENTIONALLY LEFT BLANK.

WARNING

PERSONAL INJURY

DO NOT USE these products as safety or emergency stop devices or in any other application where failure of the product could result in personal injury.

Failure to comply with these instructions could result in death or serious injury.

WARRANTY/REMEDY

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship. Honeywell's standard product warranty applies unless agreed to otherwise by Honeywell in writing; please refer to your order acknowledgement or consult your local sales office for specific warranty details. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace, at its option, without charge those items it finds defective. **The foregoing is buyer's sole remedy and is in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose. In no event shall Honeywell be liable for consequential, special, or indirect damages.**

While we provide application assistance personally, through our literature and the Honeywell web site, it is up to the customer to determine the suitability of the product in the application.

Specifications may change without notice. The information we supply is believed to be accurate and reliable as of this printing. However, we assume no responsibility for its use.

WARNING

MISUSE OF DOCUMENTATION

- The information presented in this product sheet is for reference only. Do not use this document as a product installation guide.
- Complete installation, operation, and maintenance information is provided in the instructions supplied with each product.

Failure to comply with these instructions could result in death or serious injury.

SALES AND SERVICE

Honeywell serves its customers through a worldwide network of sales offices, representatives and distributors. For application assistance, current specifications, pricing or name of the nearest Authorized Distributor, contact your local sales office or:

E-mail: info.sc@honeywell.com

Internet: www.honeywell.com/sensing

Phone and Fax:

Asia Pacific	+65 6355-2828
	+65 6445-3033 Fax
Europe	+44 (0) 1698 481481
	+44 (0) 1698 481676 Fax
Latin America	+1-305-805-8188
	+1-305-883-8257 Fax
USA/Canada	+1-800-537-6945
	+1-815-235-6847
	+1-815-235-6545 Fax

Automation and Control Solutions

Sensing and Control

Honeywell

1985 Douglas Drive North

Minneapolis, MN 55422

www.honeywell.com/sensing

005881-1-EN IL50 GLO Printed in USA
March 2007

Copyright © 2007 Honeywell International Inc. All rights reserved.

Honeywell

Power Output

Industrial VRS Magnetic Speed Sensors



DESCRIPTION

Power Output VRS sensors are designed for driving low resistance loads at large air gaps in applications where larger actuators may be used.

Passive VRS (Variable Reluctance Speed) Magnetic Speed sensors are simple, rugged devices that do not require an external voltage source for operation.

A permanent magnet in the sensor establishes a fixed magnetic field. The approach and passing of a ferrous metal target near the sensor's pole piece (sensing area) changes the flux lines of the magnetic field, dynamically changing its strength. This change in magnetic field strength induces a current into a coil winding which is attached to the output terminals.

FEATURES

- Self-powered operation
- Direct conversion of actuator speed to output frequency
- Simple installation
- No moving parts
- Designed for use over a wide range of speeds
- Adaptable to a wide variety of configurations
- Customized VRS products for unique speed sensing applications
- Housing diameter: 5/8 in (M16)
- Housing material/style: stainless steel threaded
- Terminations: MS3106 connector, preleaded
- Output voltage: 70 Vp-p

The output signal of a VRS sensor is an ac voltage that varies in amplitude and wave frequency as the speed of the monitored device changes, and is usually expressed in peak to peak voltage (Vp-p).

One complete waveform (cycle) occurs as each target passes the sensor's pole piece. If a standard gear were used as a target, this output signal would resemble a sine wave if viewed on an oscilloscope.

Honeywell also offers VRS sensors for general purpose, high output, high resolution, high temperature and hazardous location applications, as well as low-cost molded versions.

POTENTIAL APPLICATIONS

- Engine RPM (revolutions per minute) measurement on aircraft, automobiles, boats, buses, trucks and rail vehicles
- Motor RPM measurement on drills, grinders, lathes and automatic screw machines
- Motor RPM measurement on precision camera, tape recording and motion picture equipment
- Process speed measurement on food, textile, paper, woodworking, printing, tobacco and pharmaceutical industry machinery
- Motor speed measurement of electrical generating equipment
- Speed measurement of pumps, blowers, mixers, exhaust and ventilating fans
- Flow measurement on turbine meters
- Wheel-slip measurement on autos and locomotives
- Gear speed measurement

Power Output

5/8 INCH (M16*) SENSORS (All dimensions for reference only. mm/[in])

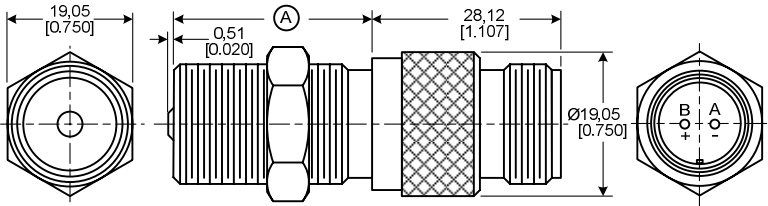
*Contact Honeywell for availability of metric mounting thread versions.

General Specifications

Parameter	Characteristic	Parameter	Characteristic
Min. output voltage	70 Vp-p	Inductance	85 mH max.
Coil resistance	120 Ohm to 162 Ohm	Gear pitch range	12 DP (module 2.11) or coarser
Pole piece diameter	4,75 mm [0.187 in]	Optimum actuator	8 DP (module 3.17) ferrous metal gear
Min. surface speed	0,38 m/s [15 in/s] typ.	Max. operating frequency	40 kHz typ.
Operating temp. range	-55 °C to 120 °C [-67 °F to 250 °F]	Vibration	Mil-Std 202F Method 204D
Mounting thread	5/8-18 UNF-2A	Termination	MS3106 connector

Test Condition Specifications

Parameter	Characteristic
Surface speed	25 m/s [1000 in/s]
Gear	8 DP (module 3.17)
Air gap	0,127 mm [0.005 in]
Load resistance	1.25 kOhm

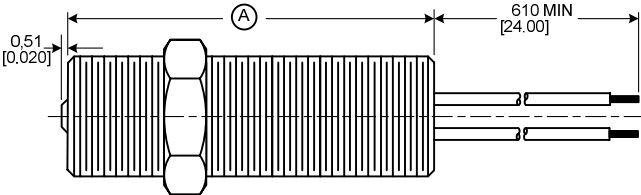
Catalog Listing	Thread Length (A)	Weight	
3040AN	28 mm [1.1 in]	70 g [2.5 oz]	
3040AN25	63 mm [2.5 in]	84 g [3.0 oz]	
3040AN30	76 mm [3.0 in]	84 g [3.0 oz]	
3040AN40	101 mm [4.0 in]	98 g [3.5 oz]	
3040AN50	127 mm [5.0 in]	128 g [4.5 oz]	

General Specifications

Parameter	Characteristic	Parameter	Characteristic
Min. output voltage	70 Vp-p	Inductance	85 mH max.
Coil resistance	120 Ohm to 162 Ohm	Gear pitch range	12 DP (module 2.11) or coarser
Pole piece diameter	4,75 mm [0.187 in]	Optimum actuator	8 DP (module 3.17) ferrous metal gear
Min. surface speed	0,38 m/s [15 in/s] typ.	Max. operating frequency	40 kHz typ.
Operating temp. range	-55 °C to 120 °C [-67 °F to 250 °F]	Vibration	Mil-Std 202F Method 204D
Mounting Thread	5/8-18 UNF-2A	Termination	20 AWG Teflon-insulated leads

Test Condition Specifications

Parameter	Characteristic
Surface speed	25 m/s [1000 in/s]
Gear	8 DP (module 3.17)
Air gap	0,127 mm [0.005 in]
Load resistance	1.25 kOhm

Catalog Listing	Thread Length (A)	Weight	
3040S20	50 mm [2.0 in]	70 g [2.5 oz]	
3040S30	76 mm [3.0 in]	84 g [3.0 oz]	

Industrial VRS Magnetic Speed Sensors

5/8 INCH (M16*) SENSORS CONTINUED (All dimensions for reference only. mm/[in])

*Contact Honeywell for availability of metric mounting thread versions.

General Specifications

Parameter	Characteristic	Parameter	Characteristic
Min. output voltage	70 Vp-p	Inductance	85 mH max.
Coil resistance	120 Ohm to 162 Ohm	Gear pitch range	12 DP (module 2.11) or coarser
Pole piece diameter	4,75 mm [0.187 in]	Optimum actuator	8 DP (module 3.17) ferrous metal gear
Min. surface speed	0,38 m/s [15 in/s] typ.	Max. operating frequency	40 kHz typ.
Operating temp. range	-55 °C to 120 °C [-67 °F to 250 °F]	Vibration	Mil-Std 202F Method 204D
Mounting thread	5/8-18UNF-2A	Termination	20 AWG Teflon-insulated leads, conduit mount

Test Condition Specifications

Parameter	Characteristic
Surface speed	25 m/s [1000 in/s]
Gear	8 DP (module 3.17)
Air gap	0,127 mm [0.005 in]
Load resistance	1.25 kOhm

Catalog Listing	Weight	
3040H20	140 g [5.0 oz]	

General Specifications

Parameter	Characteristic	Parameter	Characteristic
Min. output voltage	70 Vp-p	Inductance	85 mH max.
Coil resistance	120 Ohm to 162 Ohm	Gear pitch range	12 DP (module 2.11) or coarser
Pole piece diameter	4,75 mm [0.187 in]	Optimum actuator	8 DP (module 3.17) ferrous metal gear
Min. surface speed	0,38 m/s [15 in/s] typ.	Max. operating frequency	40 kHz typ.
Operating temp. range	-55 °C to 120 °C [-67 °F to 250 °F]	Vibration	Mil-Std 202F Method 204D
Mounting thread	5/8-18 UNF-2A	Termination	MS3106 connector

Test Condition Specifications

Parameter	Characteristic
Surface speed	25 m/s [1000 in/s]
Gear	8 DP (module 3.17)
Air gap	0,127 mm [0.005 in]
Load resistance	1.25 kOhm

Catalog Listing	Thread Length (A)	Weight	
3040A	35 mm [1.4 in]	70 g [2.5 oz]	
3040A25	63 mm [2.5 in]	84 g [3.0 oz]	



WARNING

PERSONAL INJURY

DO NOT USE these products as safety or emergency stop devices or in any other application where failure of the product could result in personal injury.

Failure to comply with these instructions could result in death or serious injury.

WARRANTY/REMEDY

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship. Honeywell's standard product warranty applies unless agreed to otherwise by Honeywell in writing; please refer to your order acknowledgement or consult your local sales office for specific warranty details. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace, at its option, without charge those items it finds defective. **The foregoing is buyer's sole remedy and is in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose. In no event shall Honeywell be liable for consequential, special, or indirect damages.**

While we provide application assistance personally, through our literature and the Honeywell web site, it is up to the customer to determine the suitability of the product in the application.

Specifications may change without notice. The information we supply is believed to be accurate and reliable as of this printing. However, we assume no responsibility for its use.



WARNING

MISUSE OF DOCUMENTATION

- The information presented in this product sheet is for reference only. Do not use this document as a product installation guide.
- Complete installation, operation, and maintenance information is provided in the instructions supplied with each product.

Failure to comply with these instructions could result in death or serious injury.

SALES AND SERVICE

Honeywell serves its customers through a worldwide network of sales offices, representatives and distributors. For application assistance, current specifications, pricing or name of the nearest Authorized Distributor, contact your local sales office or:

E-mail: info.sc@honeywell.com

Internet: www.honeywell.com/sensing

Phone and Fax:

Asia Pacific	+65 6355-2828 +65 6445-3033 Fax
Europe	+44 (0) 1698 481481 +44 (0) 1698 481676 Fax
Latin America	+1-305-805-8188 +1-305-883-8257 Fax
USA/Canada	+1-800-537-6945 +1-815-235-6847 +1-815-235-6545 Fax

Automation and Control Solutions

Sensing and Control

Honeywell

1985 Douglas Drive North

Minneapolis, MN 55422

www.honeywell.com/sensing

005880-1-EN IL50 GLO Printed in USA
March 2007

Copyright © 2007 Honeywell International Inc. All rights reserved.

Honeywell