Honeywell

Proximity Sensors Line Guide



Uncommon sense. Honeywell Safety and Productivity Solutions (S&PS) offers environmentally sealed proximity sensors in a variety of technologies — including Eddy Current Killed Oscillator (ECKO) and Hall-effect. Once a metallic object is detected in front of the sensing face, a signal is passed through the conditioning circuitry to give an output configured according to the sensor application.

These rugged, one- or two-piece products are designed to meet demanding temperature, vibration, shock, and EMI/EMP interference requirements, and are available in a number of housing materials and termination styles. Multiple potential applications are found in the harsh environments of aerospace (landing gear position, doors and slides, monitoring systems), ordnance (projectile sensing, ammunition loading systems) and marine (submarine hatch and door position, offshore equipment).

FEATURES

PROXIMITY SENSORS

RDS80004 Series.

Features: 2-wire dc inductive • Output current is proportional to the applied voltage and is designed to operate at a nominal 16 Vdc with a 1 kOhm load • Results in an output of 8 mA when no wheel is detected, and 2 mA when a wheel is detected • Available in high and low frequency versions

Benefits: Non-contact detection of rail wheel flanges at speeds up to 500 km/h. Ease of installation, electrically robust. Enhanced life, low “in track” maintenance. Supports extended lineside transmission distances. Facilitates use in wheel detection systems and fault diagnosis. Potential applications include train detection (presence, direction, speed), train direction detectors, and train axle counters.

RDSA Series.

Features: Train detection without track circuits • Directional and non-directional operating modes • Requires two wheel detections to validate train presence • Solid state technology • Self monitoring • Can detect train direction or position • Can detect sensor and power supply faults

Benefits: Enhanced reliability. Reduces risk of error. Often eliminates problems with leaves, rust, snow, salt, grit, dust, and oil on rails. No rail cutting, drilling, or insulation is required if clamps are used. Can be installed in parallel with the old system, creating minimal changeover time. Potential applications include crossing gate closure on train approach (non fail-safe), train detection for monitoring systems, and wagon location/direction in marshalling yards.

RDSB Series.

Features: Train detection without track circuits • Directional and non-directional operating modes • Requires two wheel detections to validate train presence • Solid state technology • Self monitoring • Can detect train direction or position

Benefits: Enhanced reliability. Can detect sensor and power supply faults. Reduces risk of error. Often eliminates problems with leaves, rust, snow, salt, grit, dust, and oil on rails. No rail cutting, drilling, or insulation is required if clamps are used. Can be installed in parallel with the old system, creating minimal changeover time. Potential applications include crossing gate closure on train approach (non fail-safe), train detection for monitoring systems, and wagon location/direction in marshalling yards.

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Unprecedented value. Honeywell S&PS has developed a new inductive sensor line for potential transportation and industrial applications. And every proximity sensing part or solution is infused with our legendary quality:

Two-wire Vector Impedance Technology: Our patented readout technique, when used with our two-wire proximity sensor, utilizes an algorithm and temperature compensation to provide precision gap measurement. Our proximity sensors have enhanced reliability (over 5 million units and 25 million flight hours for 340FW and 370 FW series).

Impressive breadth of line: Honeywell S&PS meets the need of any fragmented market by offering several types of sensors, making us the “one-stop shop” versus niche companies. What’s more, products have been put to use in the field for years.

Global Channel: Honeywell S&PS offers worldwide support and manufacturing, an important need in industrial segments.



Proximity Sensors

	RDS80004 Series
Description	rail wheel proximity sensors
Housing material	Polymide "Grilamid LKN5H"
Oscillating frequency	230 kHz ± 10%; 160 kHz ± 10%
Supply voltage	10 Vdc to 30 Vdc
Operating temperature range	-40 °C to 80 °C [-40 °F to 176 °F]
Output current	Supply voltage and load dependent; 2 mA/8 mA
Operating frequency (f)	> 400 HZ
Vibration	Sinusoidal 10 Hz to 2 kHz 20 g for 30 min, IEC 68-2-2
Nominal sensing distance	26,5 mm, 35mm*

* See installation guide







Proximity Sensors

	RDSA Series	RDSB Series	RDSC Series
Description	combined train approach and departure system	train detection system – directional and non-directional	train departure control system
Housing type	modular control unit	Relay rack housing	modular control unit
Housing material	Polycarbon	metal	Polycarbon
Supply voltage	20 Vdc to 50 Vdc	20 Vdc to 48 Vdc	10 Vdc to 50 Vdc; 20 Vdc to 50 Vdc
Operating temperature range	-25 °C to 70 °C [-13 °F to 158 °F]	-25 °C to 70 °C [-13 °F to 158 °F]	-25 °C to 70 °C [-13 °F to 158 °F]
Supply current max. @ 25 °C	1500 mA	250 mA	3000 mA; 1500 mA
Output functions	non-vital train approach and vital train departure indication. Other outputs: timers and errors	non-vital train detection at up to four locations or direction at two. Other outputs: fault status relay; extended fault status relay	failsafe train depart relay output. Other outputs: train in island, system active and errors
Number of sensors used	8	up to 4	8 (RDSC012); 6 (RDSC010)
Printer output	yes	no	yes
Train reversing capability	no	yes	yes (RDSC012); no (RDSC010)

Proximity Sensors





	100 FW Series	200 FW Series	300 FW Series
Description	one-piece 5/8" proximity sensor	one-piece 5/8" proximity sensor	two-piece proximity sensor
Technology	ECKO	hall	ECKO
Target material	all metals	magnet	ferrous metals
Load current	120 mA, 50 mA lamp	100 mA, 50 mA lamp	750 mA
Supply current	20 mA max. @ 25 °C	20 mA max. @ 25 °C	65 mA max.
Sensing face	shielded; unshielded	shielded	shielded
Guaranteed actuation distance	1 mm to 1.99 mm [0.039 in to 0.0783 in]; 5 mm to 10 mm [0.197 in to 0.394 in]	2 mm to 2.99 mm [0.0787 in to 0.1177 in]	1.78 mm to 3.3 mm [0.07 in to 0.130 in]
Operating temperature range	-55 °C to 125 °C [-67 °F to 257 °F]	-54 °C to 100 °C [-65.2 °F to 212 °F]	-77 °C to 125 °C [-106.6 °F to 257 °F]
Supply voltage	18 Vdc to 32 Vdc	18 Vdc to 32 Vdc	18 Vdc to 32 Vdc
Output type	normally open, current sinking	normally open/closed, current sinking	normally open/closed, current sinking

Proximity Sensors





	21 FW Series	23 FW Series	5 FW Series
Description	one-piece 12 mm proximity sensor	one-piece 22.2 mm proximity sensor	target, special, proximity sensor
Operating frequency	2000 Hz	2000 Hz	n/a
Load current	20 mA	20 mA	n/a
Supply current	25 mA	25 mA	n/a
Housing material	stainless steel	stainless steel	stainless steel
Sensing face	stainless steel	stainless steel	stainless steel
Guaranteed actuation distance	250 Gauss	250 Gauss	n/a
Operating temperature range	-55 °C to 150 °C [-67 °F to 302 °F]	-55 °C to 125 °C [-67 °F to 257 °F]	-55 °C to 150 °C [-67 °F to 302 °F]
Shock	20 g	20 g	n/a
Supply voltage	18 Vdc to 32 Vdc	18 Vdc to 32 Vdc	n/a
BITE	yes	yes	n/a
Short circuit	no	no	n/a
Pressure proof	no	no	n/a
Reverse polarity	no	no	n/a
MTBF (hrs)	35000	115000	n/a
Output type	normally open, current sinking	normally open, current sinking	n/a

Proximity Sensors Line Guide





922 Series Proximity Sensors	922AA2Y-A6P-Z722A	922FS2-A6N-Z735A
Description	one-piece 15/32” proximity sensor	one-piece 12 mm proximity sensor
Dimension	11.7 mm [0.46 in]	12 mm [0.47 in]
Operating frequency	2000 Hz	2000 Hz
Load current	250 mA	250 mA
Gd (mm)	3.6	2.8
Guaranteed actuation distance	2 mm to 2.99 mm [0.0787 in to 0.1177 in]	1 mm to 1.99 mm [0.039 in to 0.0783 in]
Operating temperature range	-55 °C to 85 °C [-67 °F to 185 °F]	-55 °C to 85 °C [-67 °F to 185 °F]
Shock	6 g 11 ms ABD 0007	6 g 11 ms ABD 0007
Supply voltage	14 Vdc to 32.5 Vdc	14 Vdc to 32.5 Vdc
BITE	no	no
Short circuit	yes	yes
Pressure proof	no	yes
Reverse polarity	no	no
Output type	normally open, current sourcing	normally open, current sourcing





M12 Proximity Sensors	ZS-00361	932AB2W
Description	one-piece M12 proximity sensor	one-piece M12 proximity sensor
Load current	80 mA	200 mA
Sensing face	crastin (plastic)	ceramic
Gd (mm)	2.91	6.8
Guaranteed actuation distance	1 mm to 1.99 mm [0.039 in to 0.0783 in]	3 mm to 3.99 mm [0.118 in to 0.157 in]
Operating temperature range	-25 °C to 85 °C [-13 °F to 185 °F]	-40 °C to 100 °C [-40 °F to 212 °F]
Shock	400 g 11 ms	100 g 6 ms
Supply voltage	14 Vdc to 33 Vdc	20 Vdc to 33 Vdc
BITE	no	no
Short circuit	yes	yes
Pressure proof	no	no
Reverse polarity	yes	yes
Insulation resistance	50 Mohm @ 500 Vdc	>50 Mohm @ 500 Vdc
Output type	normally open/closed, current sourcing	normally open, current sourcing

M18 Proximity Sensors





	ZS-00351-01	932AA3W
Description	one-piece M18 proximity sensor	one-piece M18 proximity sensor
Load current	100 mA	≤200 mA up to 85 °C to 100 mA at 100 °C
Sensing face	ceramic	ceramic
Gd (mm)	7.27	8.5
Guaranteed actuation distance	4 mm to 4.99 mm [0.1574 in to 0.19646 in]	4 mm to 4.99 mm [0.1574 in to 0.19646 in]
Operating temperature range	-35 °C to 63 °C [-31 °F to 145 °F]	-40 °C to 100 °C [-40 °F to 212 °F]
Shock	500 g 0.5 ms	100 g 6 ms
Supply voltage	12 Vdc to 32 Vdc	20 Vdc to 323 Vdc
BITE	yes	no
Short circuit	yes	yes
Pressure proof	no	no
Reverse polarity	yes	yes
Insulation resistance	10 Mohm @ 500 Vdc	>50 Mohm @ 500 Vdc
Output type	normally open, current sinking	normally open, current sourcing

M30 Proximity Sensors







	ZS-00240-03B	ZS-00228-050	ZS-00341
Description	one-piece M30 proximity sensor	one-piece underwater proximity sensor	one-piece underwater proximity sensor
Load current	200 mA	250 mA	≤120 mA
Housing material	stainless steel	polyethylene	stainless steel
Sensing face	ceramic	overmoulded	stainless steel
Gd (mm)	11.64	16	16
Guaranteed actuation distance	5 mm to 10 mm [0.197 in to 0.394 in]	5 mm to 10 mm [0.197 in to 0.394 in]	ZS-00341-01: ≥0.8 mm; ZS-00341-02: ≥21.84 mm
Operating temperature range	-55 °C to 85 °C [-67 °F to 185 °F]	-40 °C to 85 °C [-40 °F to 185 °F]	-55 °C to 90 °C [-67 °F to 194 °F]
Shock	100 g 6 ms	6 g 11 ms	6 g 11 ms
Supply voltage	14 Vdc to 33 Vdc	10 Vdc to 32.2 Vdc	14 Vdc to 32.5 Vdc
BITE	no	no	no
Short circuit	yes	yes	yes
Pressure proof	no	no	yes
Reverse polarity	yes	yes	yes
Output type	normally open/closed, current sourcing	normally open, current sourcing	normally open, current sourcing

RDSC Series.

Features: Train detection without track circuits • Zero speed and bi-directional sensing • Duplex microprocessor system • Relay outputs • Solid state technology • RS 232 diagnostic output • Detects standard rail wheels up to speeds of 281 mph • Connecting wires may be up to 2 miles only (>10,000 ft.) • Sealing to IP 68

Benefits: Enhanced reliability. Robust design. Designed to provide fail-safe train depart output. Interfaces with existing crossing controls. Quick installation. Allows proactive maintenance and fault monitoring. Resistant to shock and vibration. Wide temperature range. Polarity independent – voltage may be reversed and sensor still works. Short circuit, overvoltage, and transient protection. Greatly reduces problems with leaves, rust, snow, salt, grit, dust, and oil on rails. Designed for use in potential reversing train applications.

100 FW Series.

Features: All metal sensing • Shielded 3-wire dc sinking (NPN) • Small housing • Stainless steel • High level of electronics protection • Leadwire or connector termination

Benefits: Enhanced reliability. Environment-proof, self-contained. Enclosed in a rugged hermetically sealed stainless steel housing. Designed to meet the requirements of aerospace, ordnance, marine, mass transit, and high performance industrial equipment. Potential applications include aircraft landing gear, gun turret position control, and door and hatch open/closed monitoring.

200 FW Series.

Features: Hall-effect, magnetic field sensitive • High frequency switching • Shielded 3-wire dc sinking (NPN) • Small housing • Stainless steel • High level of electronics protection • Leadwire or connector termination

Benefits: Enhanced reliability. Environment-proof, self-contained. Enclosed in a rugged hermetically sealed stainless steel housing. Designed to meet the requirements of aerospace, ordnance, marine, mass transit, and high performance industrial equipment. Potential applications include aircraft landing gear, gun turret position control, and door and hatch open/closed monitoring.

300 FW Series.

Features: Ferrous metal sensing • Two-piece construction – stainless steel bushing or flange mount sensors and plug-in electronics card • Small size housing • Stainless steel • Reverse polarity • Designed to work in conjunction with Honeywell Sensor Interface Card (405 FW Series) or Sensor Interface Module (ZS-00380 Series)

Benefits: The combined sensor and interface system offer highly enhanced reliability. Mean time between failure in excess of 500K hours when used with the Sensor Interface Module (ZS-00380 Series). Sensitive electronics on plug-in card for inside mounting. Enclosed in a rugged hermetically sealed stainless steel housing. Designed to withstand temperature extremes and exposure to salt, humidity, sand, dust, and corrosive fluids such as skydrol and typical aircraft fuels. Potential applications include aircraft landing gear, flight control surfaces, and aircraft door monitoring.

21 FW Series.

Features: Hall-effect, magnetic field sensitive • Single channel • 3-wire dc • Small housing • Stainless steel

Benefits: Enhanced reliability. Small profile. Enhanced resistance to electromagnetic interference. Competitive cost. Often ideal for many locations on an aircraft, or potential applications with severe shock, vibration, temperature, and EMI environments. Potential applications include door and utility systems, high lift systems, hydraulic systems, valves, engine/thrust reverser systems, power generation systems, environmental control systems, aircraft landing gear, gun turret position control, and door and hatch open/closed monitoring.

23 FW Series.

Features: Hall-effect, magnetic field sensitive • Triple channel • 9-wire dc • Small housing • Stainless steel

Benefits: Enhanced reliability. Small profile. Enhanced resistance to electromagnetic interference. Competitive cost. Often ideal for many locations on an aircraft, or applications with severe shock, vibration, temperature, and EMI environments. Potential applications include door and utility systems, high lift systems, hydraulic systems, valves, engine/thrust reverser systems, power generation systems, environmental control systems, aircraft landing gear, gun turret position control, and door and hatch open/closed monitoring.

5 FW Series.

Features: Hall-effect, magnetic field sensitive • Small housing • Stainless steel

Benefits: Enhanced reliability. Small profile. Enhanced resistance to electromagnetic interference. Competitive cost. Often ideal for many locations on an aircraft, or applications with severe shock, vibration, temperature, and EMI environments. Potential applications include door and utility systems, high lift systems, hydraulic systems, valves, engine/thrust reverser systems, power generation systems, environmental control systems, aircraft landing gear, gun turret position control, and door and hatch open/closed monitoring.

922AA2Y-A6P-Z722A.

Features: All metal sensing • Stainless steel • Small housing • High frequency switching • High level of electronics protection • Leadwire or connector termination

Benefits: Environment-proof. Self-contained. Operation by the Eddy Current Killed Oscillator (ECKO) principle to detect metallic objects passing in front of the sensing face. Designed to meet the requirements of aerospace, ordnance, marine, and mass transit and high performance industrial equipment. Potential applications include aircraft landing gear, gun turret position control, and door and hatch open/closed monitoring.

922FS2-A6N-Z735A.
Features: All metal sensing • Stainless steel • Small housing • High pressure capability (>350 bar) • High level of electronics protection • Leadwire or connector termination

Benefits: Environment-proof. Self-contained. Operation by the Eddy Current Killed Oscillator (ECKO) principle to detect metallic objects passing in front of the sensing face. Designed to meet the requirements of aerospace, ordnance, marine, and mass transit and high performance industrial equipment. Potential applications include aircraft landing gear, gun turret position control, and door and hatch open/closed monitoring.

ZS-00361.
Features: Hall-effect, magnetic field sensitive • Stainless steel • Small housing • High level of electronics protection • High frequency switching • Leadwire or connector termination

Benefits: Environment-proof. Self-contained. Operation by the Eddy Current Killed Oscillator (ECKO) principle to detect metallic objects passing in front of the sensing face. Designed to meet the requirements of aerospace, ordnance, marine, and mass transit and high performance industrial equipment. Potential applications include aircraft landing gear, gun turret position control, and door and hatch open/closed monitoring.

932AB2W.
Features: All metal sensing • Stainless steel • Small housing • High level of electronics protection • High frequency switching • Leadwire or connector termination

Benefits: Environment-proof. Self-contained. Operation by the Eddy Current Killed Oscillator (ECKO) principle to detect metallic objects passing in front of the sensing face. Designed to meet the requirements of aerospace, ordnance, marine, and mass transit and high performance industrial equipment. Potential applications include aircraft landing gear, gun turret position control, and door and hatch open/closed monitoring.

ZS-00351-01.
Features: All metal sensing • Stainless steel • Small housing • High level of electronics protection • Built in test function (BITE) • Leadwire or connector termination

Benefits: Environment-proof. Self-contained. Operation by the Eddy Current Killed Oscillator (ECKO) principle to detect metallic objects passing in front of the sensing face. Designed to meet the requirements of aerospace, ordnance, marine, and mass transit and high performance industrial equipment. Potential applications include aircraft landing gear, gun turret position control, and door and hatch open/closed monitoring.

932AA3W.
Features: Hall-effect, magnetic field sensitive • Stainless steel • Small housing • High level of electronics protection • High frequency switching • Leadwire or connector termination

Benefits: Environment-proof. Self-contained. Operation by the Eddy Current Killed Oscillator (ECKO) principle to detect metallic objects passing in front of the sensing face. Designed to meet the requirements of aerospace, ordnance, marine, and mass transit and high performance industrial equipment. Potential applications include aircraft landing gear, gun turret position control, and door and hatch open/closed monitoring.

ZS-00240-03B.
Features: Hall-effect, magnetic field sensitive • Stainless steel • Small housing • High level of electronics protection • High frequency switching • Leadwire or connector termination

Benefits: Environment-proof. Self-contained. Operation by the Eddy Current Killed Oscillator (ECKO) principle to detect metallic objects passing in front of the sensing face. Designed to meet the requirements of aerospace, ordnance, marine, and mass transit and high performance industrial equipment. Potential applications include aircraft landing gear, gun turret position control, and door and hatch open/closed monitoring.

ZS-00228-050.
Features: All metal sensing • High level sealing by overmoulding • Enhanced performance sealed and shielded cable • Reverse polarity and short circuit protection

Benefits: Environment-proof. Self-contained. Enclosed on rugged hermetically sealed ceramic/stainless steel housing and overmoulded to provide complete encapsulation. Operation by the Eddy Current Killed Oscillator (ECKO) principle to detect metallic objects passing in front of the sensing face. Potential applications include submarine control systems, submersible vehicles, offshore underwater equipment, and underwater pipeline controls.

ZS-00341.
Features: Ferrous metal sensing • All stainless steel construction including sensing face and laser welded connector • High pressure capability up to 205 bar (system pressure) • Enhanced level of electronics protection • Mean time between failure is 126K hours

Benefits: Environment-proof. Self-contained. Enclosed on rugged hermetically sealed ceramic/stainless steel housing and overmoulded to provide complete encapsulation. Operation by the Eddy Current Killed Oscillator (ECKO) principle to detect metallic objects passing in front of the sensing face. Designed to meet the requirements of aerospace and marine applications. Potential applications include aircraft hydraulic systems, fighting vehicle engine/transmission controls, and ship and submarine hydraulic systems.

Warranty. Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship during the applicable warranty period. 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.

To learn more about Honeywell Safety and Productivity Solutions' products, call **+1-815-235-6847 or 1-800-537-6945,** visit **sensing.honeywell.com**, or e-mail inquiries to info.**sc@honeywell.com**

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003703-2-EN IL50 GLO
August 2016
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