



# Sensors

RDS offers a wide range of sensors designed for low cost and harsh environments



# Reed Switch and Magnets

**Principle:** Closing contact induced by a magnetic field.

**Example applications:** Rotation, distance, area, event counting

## Sensors:

Standard Sensor:













Rugged Sensor:



Supply Voltage: N/A - passive  
 Output: Closing contact  
 Frequency: 0 ~ 100Hz  
 Current (resistive): Switch 0.5A, hold 1.2A  
 Material: Stainless Steel  
 Protection: IP67  
 Sensitivity: Magnet and field strength dependent, typically 5 ~ 30mm

Sensor	Ref.	Length (mm)	Diameter	Cable length/Termination
Standard	K/SNR/503	45.0	M12	5000 free ends
Rugged	S/SR/500-2-001	80	15	4000 6.35mm fast-on

## Magnets:

	Ref.	Magnet	Position	O/D	Bore	Length (mm)	Pulses/Rev
	1.	S/MG/500-12-003	End of shaft	34	6.5	14	1
	2.	S/MG/500-12-002	On shaft (PTO)	63	35	14	1
	3.	S/MG/185-1-013	On shaft	50	23	8	1
	4.	S/MG/185-1-010	On shaft	48	22.5	14	3
	5.	S/MG/217-1-010	On shaft	48	20.5	14	3
	6.	S/MG/185-1-014	On shaft	48	22.8	14	6
	7.	S/MG/195-1-027	End of shaft	63	6.5	15	8
	8.	S/MG/202-1-016	On shaft	63	22.5	15	8
	9.	S/MGNT/CRRY/003	Saddle	25 (l)	20(w)	28(h)	1
	10.	S/MAGNET/002	As req'd	32	6.5	15	N/a
	11.	S/MG/193-1-020	As req'd	16	4.5	7	N/a
	12.	S/MG/500-12-012	On Shaft	60	15	14	3


## Inductive

**Principle:** Sensor detects presence of conductive material.

**Example applications:** Rotation, distance, area, event counting


Supply Voltage: 10 ~ 30 Vdc  
 Output: NPN  
 Switching Frequency: 400Hz  
 Current: <18 mA  
 Material: Stainless Steel  
 Protection: IP67

Sensor	Threaded Length	Diameter	Sensing Distance	Cable length/Termination
S/Z782-079	28	M12	4.0	2000 free ends

Image	Part Number	Threaded Length	Diameter	Sensing Distance	Cable/Conns
	S/SR/500-2-054		M12	Non-Flush	M12 Connector
	S/SR/500-2-058		M12	Flush	M12 Connector
	S/Z782-079		M12	Flush	2000mm Cable
	S/Z782-113		M18		2000 free ends

## Rotary Encoder

**Example applications:** Seed drills, fertilizer/salt spreaders, harvesters. 360 pulses/rev gives good response and resolution even at low speeds.

Image	Part Number	Pulses/Rev	Dimensions	Protection	Voltage
	S/SR/500-2-035	360 (NPN)	70 (L) x 170 Dia	IP67	10-30V
	S/SR/500-2-083	100 (NPN)	37 (L) x 40 Dia	IP54	10-30V

## Capacitive

**Principle:**

Capacitance change due to change of dielectric constant

**Example applications:**

High/low level sensing of granular materials. Fertilizer/salt spreaders, combine grain tanks, grain drills, silos.



Supply Voltage: 10 ~ 30 Vdc, @ < 35mA  
Output: NPN  
Hi: Vsupply  
Lo: < 0.1 V @ 2mA, < 1.2V @ 50mA  
Material: uPVC  
Protection: IP67  
Sensitivity: Depends on sensed material.  
Typically 4 ~ 20 mm  
80 mm x 1 inch BSP  
N/O external connections

Sensor	Ref.
Standard	S/SR/201-2-002

## Force

**Principle:**

Strain Gauge

**Example applications:**

Load and overload measurement on vehicles. Easily installed onto vehicle chassis or stressed member.

Supply Voltage: 10 - 30 V DC  
Output: Differential Voltage 1-5V  
Protection: IP67  
Dimensions: 60mm (W) 90mm (L) 28mm (H)  
Cable: 600mm to 4pin super-seal  
Interface Output: 3 - 6 KHZ, 4 - 20 MA



Sensor	Ref.
Epsilon	K/EPSILON/STR

## Pressure

**Example applications:** Crop sprayers, hydraulic pressure monitoring/measuring

Supply Voltage: 10 ~ 30 Vdc  
Output: See table  
Material: Stainless Steel  
Protection: IP67  
Cable: 2000mm to Weatherpack

Image	Part Number	Range (bar)	Output	Cable/Conns
	S/SR/500-2-024	10	4 - 20 mA	Hirschman Cap
	S/SR/500-2-024	10	1 - 6 Volts	2000mm to Weatherpack
	S/SR/500-2-070	16	4 - 20 mA	Hirschman Cap
	S/SR/500-2-068	40	4 - 20 mA	Hirschman Cap
	S/SR/500-2-066	100	4 - 20 mA	Hirschman Cap
	S/SR/500-2-067	250	4 - 20 mA	Hirschman Cap
	S/SR/500-2-067	250	Frequency (3 - 6kHz)	300mm to Weatherpack

## Grain Flow

**Principle:**

Dynamic measurement of occlusion time as loaded paddle passes light beam

**Example applications:**

Grain flow measurement on paddle elevators. Used on combine harvesters for the measurement of both clean grain and returns grain.



**Transmitter**

Supply Voltage: 10 ~ 30 Vdc  
Current: < 28 mA

**Receiver**

Supply Voltage: 10 ~ 30 Vdc  
Current: < 15 mA  
Output: NPN  
Max Frequency: 500Hz  
Reaction Time: 1 mS  
Material: Stainless Steel  
Protection: IP67  
Dimensions: 75 (l) x M18

**Models**

Transmitter/Receiver (pair)	S/SR/182-2-017
Lens Assembly (each)	S/AC/182-2-020

For further information concerning interfacing and required software algorithms, contact the RDS OEM department.

## Moisture

**Principle:**

Capacitive

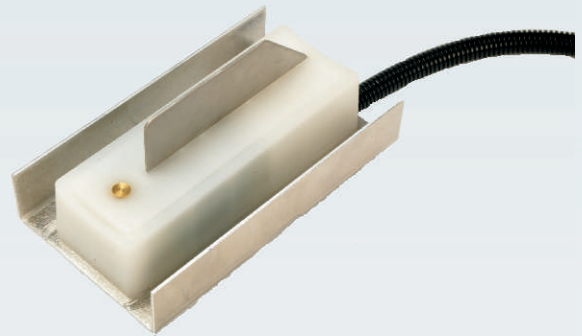
**Example applications:**

Continuous measurement of moisture on combine harvesters, grain driers, etc

Supply Voltage: 10 ~ 30 Vdc  
Output: Analog  
Dimensions O/A 170 (l) x 100 (w) x 50 (h) mm  
Cable: 400 mm to AMP

**Models**

Standard Moisture Sensor	S/SR/182-6-013
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For further information concerning interfacing and required software algorithms, contact the RDS OEM department.

## Speed

### Models

Satspeed 2 Kit with 3-way Weatherpack Connector	K/SATSPEED2/W
Satspeed 2 Kit with 3-way AMP Superseal Connector	K/SATSPEED2/S
Satspeed 2 Kit with 4-way AMP CPC Connector	K/SATSPEED2/C

Part Ref.	Output / Cal. Factor					
	Frequency Hz km <sup>-1</sup> hr <sup>-1</sup> (Hz mile <sup>-1</sup> hr <sup>-1</sup> )	pulse m <sup>-1</sup>	m pulse <sup>-1</sup>	m 2-pulse <sup>-1</sup>	cm pulse <sup>-1</sup>	cm 2-pulse <sup>-1</sup>
K/SATSPEED2/W	35.60	128.16	0.0078	0.0156	0.7803	1.5605
K/SATSPEED2/S	(57.42)					
K/SATSPEED2/C	36.60 (59.00)	131.78	0.0076	0.0152	0.7588	1.5177

## Switches and Cut Out Sensors

Image	Part Number	Description
	K/CUT/OUT/KIT/001	Pull Switch
	K/CUT/OUT/KIT/002	Magnet and Reed Sensor Switch
	K/CUT/OUT/KIT/003	Double Pole Toggle Switch
	K/CUT/OUT/KIT/006	Manual
	K/CUT/OUT/KIT/007	Reverse Pull Switch
	K/CUT/OUT/KIT/008	Hydraulic Switch

## Switches and Cut Out Sensors Continued

Image	Part Number	Description
	K/CUT/OUT/KIT/009	Shaft Sensor
	K/CUT/OUT/KIT/013	Finger Switch
	K/CUT/OUT/KIT/014	Diode

For over 40 years RDS has been at the forefront of supplying electronic solutions to manufacturers of mobile machinery. Both the instrument displays and the sensors are robust and reliable and satisfy the RDS ethos of providing practical solutions for practical users. RDS sales engineers are all experienced mechanical/mechatronic engineers, with deep understanding of the requirements of modern mobile machinery.

*"Practical solutions for practical people"*



For further information concerning interfacing and required software algorithms, contact the RDS OEM department [oem.sales@rdstec.com](mailto:oem.sales@rdstec.com)