

# S18-SSTHS1-R5SA5-30

## Magnet Detecting Speed Switch

- Moving Magnet Actuated Speed Switch, 55 Gauss sensitivity
- Transistor output for Over or Under Speed
- Regulated input, NPN with 5k pull-up
- Stainless 18x1mm x 53mm housing
- Shielded 4 wire 22 AWG 80°C PVC, 5ft



### CUSTOMER FOCUSED ENGINEERING + MODULAR DESIGN

Part Description: **S18-SSTHS1-R5SA5-30**

Housing	Sensor Type & Function	Electrical Option	Connection Type	User Defined Frequency
S = Stainless Steel, Thread Pitch M18x1, 53mm Long	South Pole Magnet Actuated Speed Switch	Regulated Input NPN w/5k Pull up	SA Shielded 4 Wire 22 AWG 80°C PVC	Switch Frequency <u>xxx</u> in Hz

Modify, update, or enhance any sensor with our modular features and functionality.

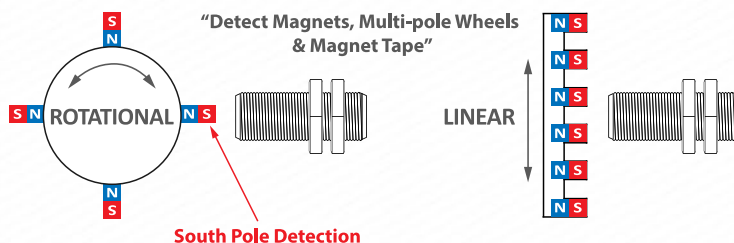
**HOUSING** -Aluminum, stainless steel, plastic, threaded, flange mount, customer specific

**ELECTRICAL** -Every sensor function available in various electrical options (NPN, PNP, TTL, etc.)

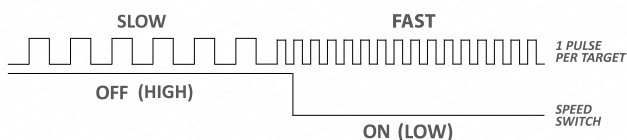
**CONNECTION** -Deutsch, Amphenol, many other brands, free end wires, pigtails, any length

Need a Custom Sensor Solution?... Send us your application specific requirements at [sensors@standexelectronics.com](mailto:sensors@standexelectronics.com)

### 'South Pole Magnet Actuated Speed Switch with Transistor Output' Overspeed, Underspeed, Zero-Speed



#### OUTPUTS



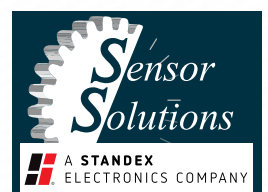
Type - SSM

#### DESCRIPTION

- Speed switch output turns on/off dependent on factory programmed frequency.
- 30 Hz switch point will activate the output at any speed where 30 or more magnets pass the sensor within 1 second. Contact us for lower or higher switching speeds.
- Single channel digital square wave output for resolving actual speed.
- Detects the South Pole field from permanent magnets using Hall Effect Technology
- Detects south pole fields of 55 Gauss or more. Operate gap range dependent on magnet size/type
- No orientation required. Use lock nuts to set air gap within range of target

#### FEATURES

- Non-contact speed measurement
- No Orientation Required
- Add -xxx in Hz to End of PN – contact factory for custom switch point models



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### OTHER OPTIONS

As well as these Ferrous Target Speed Switches, we offer Magnet / Magnet Tape activated Speed Switches, and Gear Tooth Speed Switches designed to work with standard gears. We have options for relay outputs, NPN outputs, and TTL outputs.

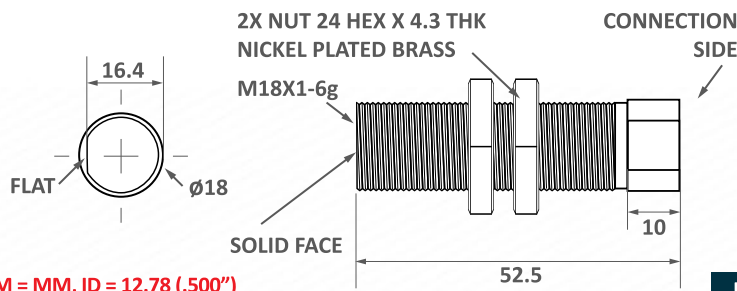
Note: Check our website or contact us to discuss any of our magnetic speed, count, and position detection sensors.

Electrical Specifications	Conditions	Min	Max	Unit
Temperature Range	Operating	-40	+110	Deg C
Supply Voltage, Vcc	Over temperature	+8	+30	Volts DC
Supply Current	Into Vcc	2.5	12	mA
Internal Pull up Resistor	Vcc to +5V	4.9	5.1	kOhms
Vol, Low Level Vout	Vcc = 12V, Rload >100k	0.0	0.7	Volts
Voh, High Level Vout	Vcc = 12V, Rload >100k	11.75	12	Volts
Overspeed TRIP Frequency	Output goes low above	28	31	Hz
Underspeed Release Freq.	Output goes high below	24	27	Hz
ESD (like product qualified)	Nondestructive	-	2000	Volts
EMI (like product qualified)	20k to 1 G Hz	-	20	V / M

Grey shaded specs are 100% Final tested before shipping

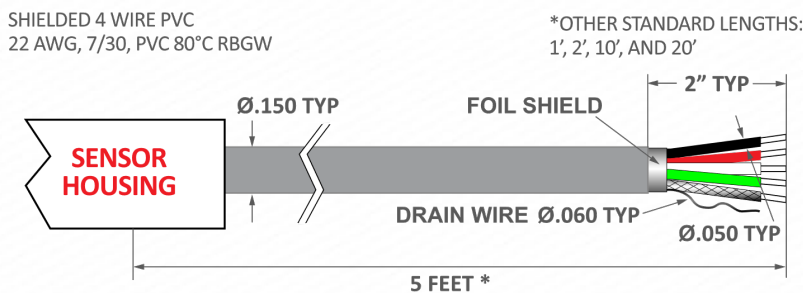
Rev C

### S18 Housing, 303 Stainless Steel, M18X1, 53mm Long



Rev E

### SA5, Shielded 4 Wire 22 AWG 80°C PVC



DIM = INCH

Rev D

Absolute Max Limits	Min	Max	Unit
Supply Voltage, Vcc-Gnd	-32	+32	Volts
Voltage at Output	-.3	30	Volts
Sink Current into Output	-	50	mA
Short Circuit Prot. Vout-Gnd	-	Indef.	Minutes
Short Circuit Prot. Vout+Vcc	-	None	Minutes

### Environmental Specifications

Corrosion Resistance	500 hours salt spray ASTM B-117
Installation Torque	60 Foot-Pounds Maximum
Enclosure	Nema 1,3,4,6,13 & IEC IP67
Vibration	10 G's 2 to 2000 Hz Sinusoidal
Mechanical Shock	100 G's, 11 mS Half-Sine

### Sensor Characteristics – S Pole Sensitive

#### Output State at 0 Speed: High (Transistor Off)

Operate Point Over Temp	15 G	55 G	76 G
100% Tested at 25°C before shipping			
Release Point Over Temp	5 G	35 G	57 G
Hysteresis Over Temp	5 G	20 G	28 G
TRIP Frequency Accuracy, Output LOW	.98%	1.0%	1.01%*
RELEASE Frequency Accuracy, Output HIGH	.99%***	1.0%	1.02%
STOP DETECT TIME, Output returns high after sudden stop	10ms(Typical)		

\* Gap the sensor to make sure it sees >77 G when close, <17 G when far.

\*\* Output is LOW if teeth are passing by faster than 1.02 \* Trip Frequency.

\*\*\*Output is HIGH if teeth are passing by slower than 0.99 \* Release Frequency

### Convert RPM to Hz

Over/Under Speed Trip Points are in Hz, pulses per second.

To convert RPM (Revolutions per Minute) to Hz, you need to know the target's pulses per revolution, "N". A target with 2 S pole magnets will produce 2 pulses per revolution, so N=2.

$$\text{Hz} = \text{RPM} * (N / 60). \text{ Or } \text{RPM} = \text{Hz} * (60 / N).$$

*Example: Using 2 magnets and a 30 Hz trip point,  
RPM = 30 \* (60 / 2) so the output  
switches low at 900 RPM.*

### Connections Chart

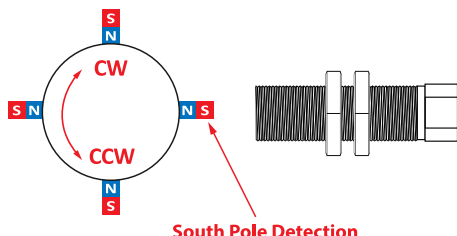
Red Vcc	Black Ground
Green Pulse Vout	White Switch Vout
S18-SSTHS1	

OTHER MATING CONNECTORS AND CABLES AVAILABLE

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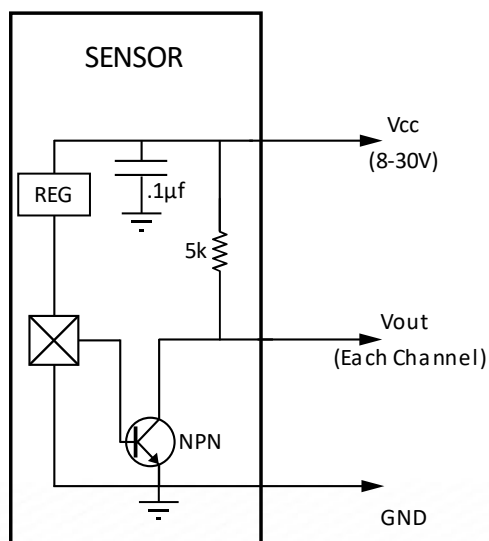
### Sensor Function



ROTATIONAL  
AND LINEAR  
DETECTION

S18-SSTHS1

### R5, Regulated, 5k Resistor



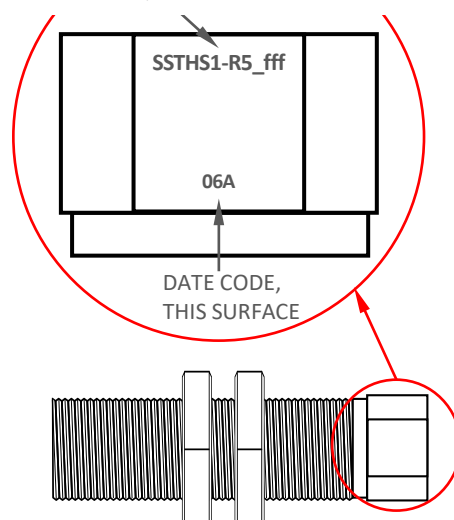
### Date Code 'YYM'

YY = YEAR, M = MONTH

A JAN	D APR	H JUL	L OCT
B FEB	E MAY	J AUG	M NOV
C MAR	G JUN	K SEP	N DEC

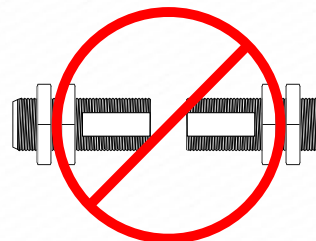
### Marking

CHARACTERISTIC-OPTION, TRIP SPEED  
MARKED ON THIS SURFACE  
fff = SWITCH FREQUENCY IN Hz #



### Handling Instructions

**DO NOT CONTACT  
FACE TO FACE**



**CONTACT WITH OTHER MAGNETS MAY  
REDUCE THE MAXIMUM OPERATING GAP**

Please note: All technical specifications on this series datasheet refer to the standard product range. Modifications in the sense of technical progress are reserved. For general information only. For more specific information, please consult the product datasheet, available upon request.

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