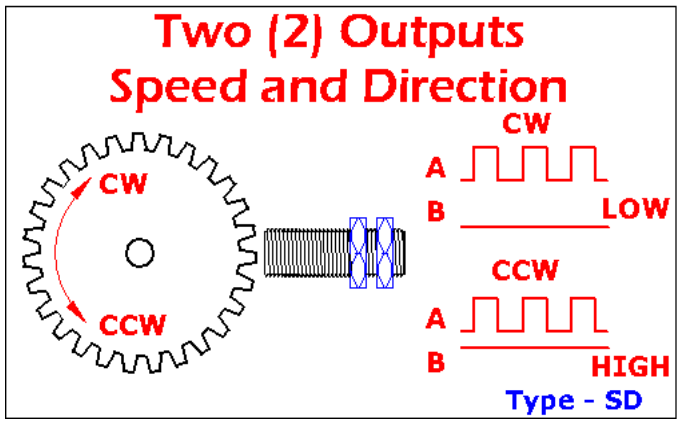
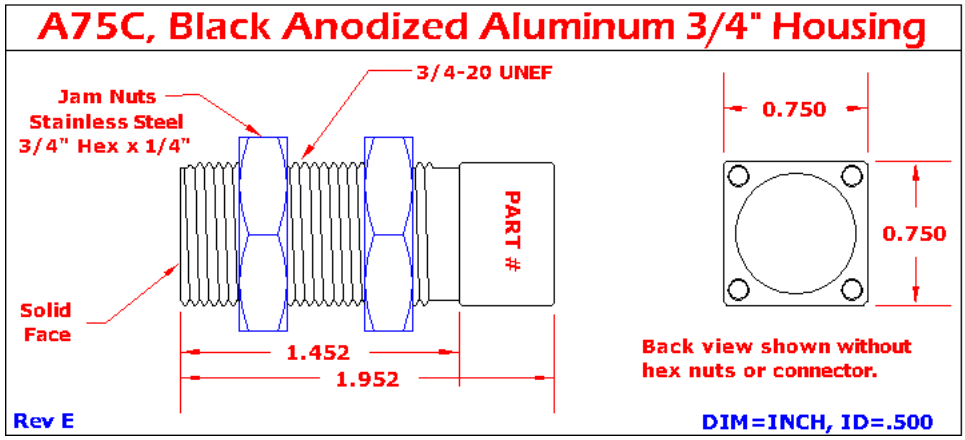
A75C-37ADSDO-51T21 - Speed and Direction Gear Tooth Sensor www.sensorso.com

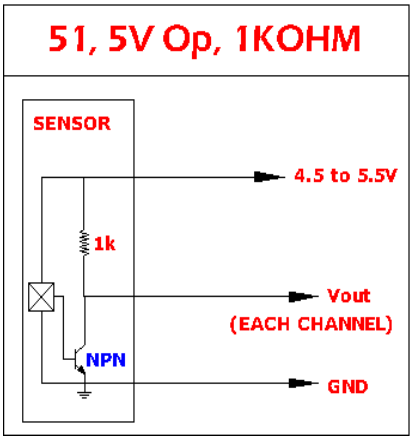
Speed Direction Sensor, Target Tracker, 5V input, npn 1k pull up output, Aluminum 3/4-20 x 2" connector option housing, free end Teflon 22AWG wires, 1 foot

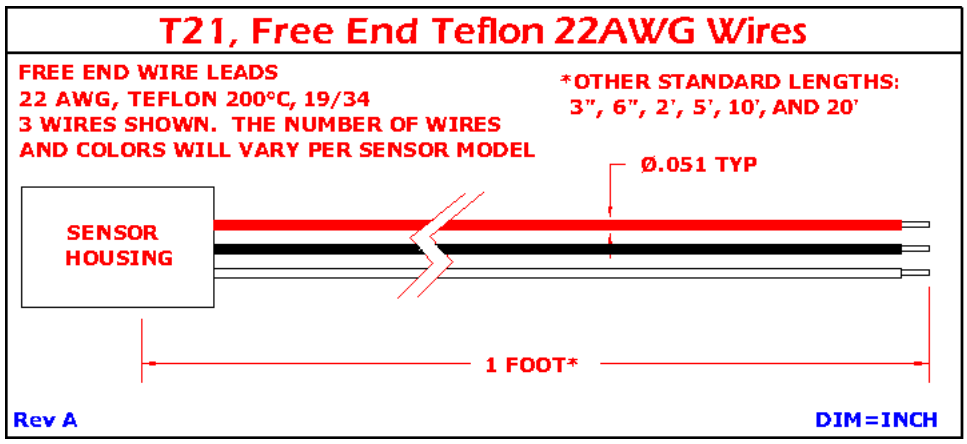


- *SELF CALIBRATING*
- *BEST CHOICE FOR STEEL GEARS LESS THAN 4 PITCH*
- *1/2 TOOTH MIN. HYSTERESIS*

ENVIRONMENTAL SPECIFICATIONS - A75C	
Corrosion Resistance	500 hours salt spray ASTM B-117
Installation Torque	64 Foot-Pounds Maximum
Enclosure	Nema 1,3,4,6, &IEC IP67
Vibration	10 G's 2 to 2000 Hz Sinusodal
Mechanical Shock	100 G's, 11 mS Half-Sine







Connections Chart	
Red	Vcc
Black	Ground
White	Speed
Green	Direction
T21-37ADSDO	

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

The 37ADSDO Digital Speed Sensor provides 2 digital outputs as gear teeth rotate by the sensor's face. These sensors have 2 internal sensing elements that are physically placed 1/4, 3/4 or 1 1/4 tooth apart. The internal quadrature phase angle (phase shift from channel A to channel B) ideally should be 90 degrees. This will only happen if the correct gear pitch is used, and the sensor is aligned to the target's rotation direction. Therefore, when ordering this sensor, it cannot be built until the factory receives the gear pitch for the intended target.

Gear pitch = (the # of teeth on the gear) / (the gear's contact diameter in inches)

Specifications may not be valid when the application is not detecting an end-sensed, 14.5 pressure angle, steel spur gear. The presence of ferrous metals or strong magnetic fields in close proximity to the sensor's internal magnet may also invalidate the specifications. Engineers are available to assist in target design and applications with non-standard targets. Custom target specifications can only be guaranteed when the customer supplies a target along with any additional components that may affect sensor output, and the customer has validated function in the finished application.

The 37ADSDO is a self calibrating sensor with dynamic peak detection, making it the best choice for the detection of non-standard gears and targets such as bolt heads and holes in rotating discs. The direction signal is resolved by a D Flip flop. Internal signal B is used for the D signal, and signal A (SPEED) runs the clock input. When the gear changes direction, the direction signal changes states upon the falling edge from SPEED. The direction signal is designed to always power up with the output off if the target is not moving. Check our website or contact us to compare all of our speed and direction output gear tooth sensors.

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37ADSDO-51, Electrical & Functional Specifications

ABSOLUTE MAX LIMITS	MIN	MAX	UNITS
Supply Voltage, Vcc	-.3	5.5	Volts DC
Voltage applied to output	-0.3	+5.5	Volts
Current into output	--	20	mA
Current out of output	--	5mA	mA
Load Dump, 40mS Rs=20	--	n/a	Volts
Output Power, T=25C	--	350	mW

ELECTRICAL SPECS	CONDITIONS	MIN	MAX	UNITS
Temperature Range *	Operating	-40	+110*	Deg C
Supply Voltage, Vcc	Over temperature	4.5	5.5	Volts DC
Supply Current, Output Off	Into Vcc	+10	+26	mA
Frequency Range **	Near zero speed	0.1	15k**	Hz
Vol, Low Level Vout	Vcc=5, Rload > 10k	0	0.7	Volts
Voh, High Level Vout	Rload > 10k	4.5	5.25	Volts
Pull up resistor	Internal	1.9	2.1	k ohms
Output Rise Time 10-90%	C < 100pF	--	1.0	uS
Output Fall Time 90-10%	C < 100pF	--	1.0	uS
ESD ***	Nondestructive	--	2000	Volts
EMI ***	20k to 1 G Hz	--	20	V/M

* T max = 125°C is available, contact factory.
** 20 kHz available, contact factory.
*** Similar product qualified.
**** Non contacting

TARGET PERFORMANCE GEAR PITCH ~(#Teeth/Diam. in inches)	AIR GAP RANGE****	TYPICAL MAX GAP	TYP. OUTPUT DUTY CYCLE	ALIGNMENT SKEW ANGLE
4 (.785" tooth to tooth)	.000 to .150"	.200"	40 to 60%	±25 deg
6 (.524" tooth to tooth)	.000 to .120"	.180"	40 to 60%	±25 deg
8 (.393" tooth to tooth)	.000 to .080"	.125"	40 to 60%	±25 deg
12 (.262" tooth to tooth)	.000 to .050"	.085"	35 to 65%	±25 deg
16 (.196" tooth to tooth)	.000 to .040"	.055"	35 to 65%	±20 deg
20 (.157" tooth to tooth)	.000 to .025"	.045"	30 to 70%	±15 deg
24 (.131" tooth to tooth)	.000 to .015"	.035"	30 to 70%	±10 deg

Rev C