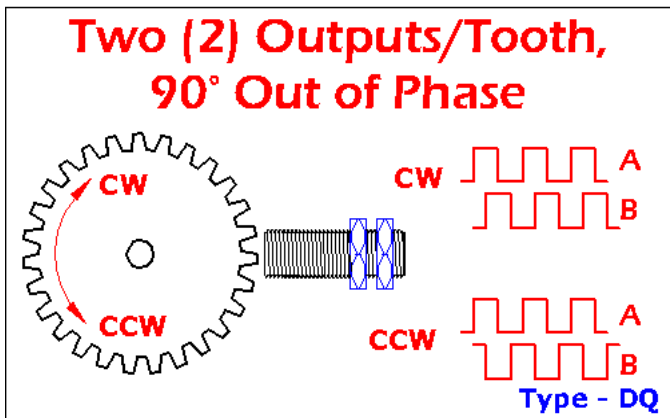


A75C-37ADQO-RTT21 - Quadrature (2 Channel) Gear Tooth Sensor

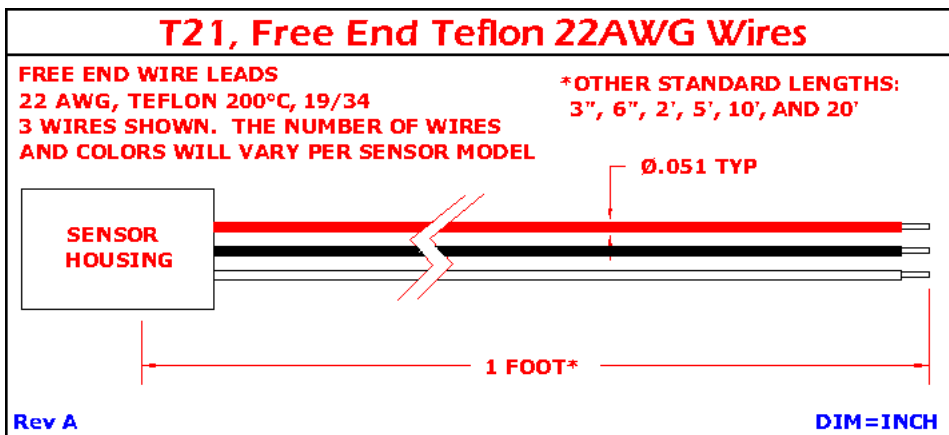
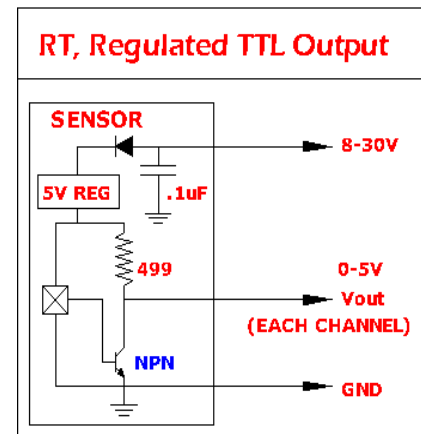
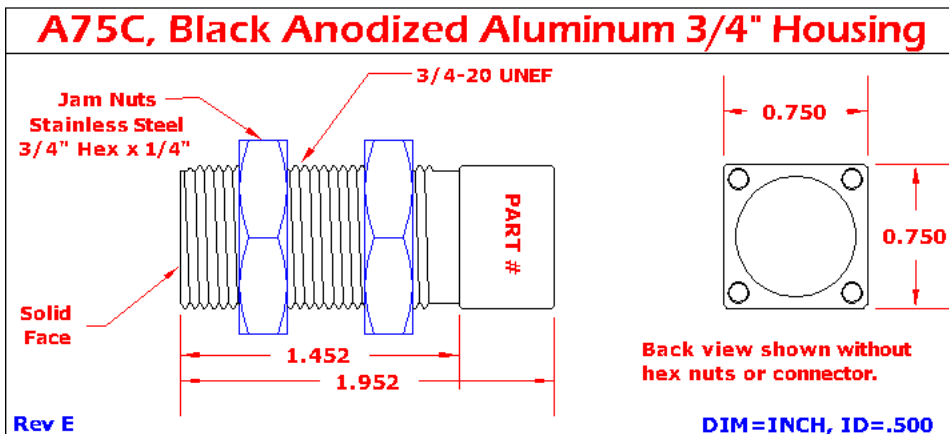
www.sensorso.com

Quadrature Speed Sensor, 110C, Self Calibrating, regulated input, 0-5V TTL output, Aluminum 3/4-20 x 2" connector option housing, free end Teflon 22AWG wires, 1 foot



- o SELF CALIBRATING
- o DETECTS COARSE PITCH GEARS
- o DETECTS NON-STANDARD GEARS
- o DETECTS NON-GEAR FERROUS TARGETS

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 Sinusoidal
Mechanical Shock	100 G's, 11 ms Half-Sine



Connections Chart	
Red	Vcc
Black	Ground
White	Channel A
Green	Channel B
T21-37ADQO	

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 37ADQO Quadrature 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 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 correctly with 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.

$$\text{Gear pitch} = (\text{the \# of teeth on the gear}) / (\text{the gear's contact diameter in inches})$$

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 37ADQO sensor is the best choice for detecting gears with missing or unevenly spaced teeth, as well as other targets such as bolt heads or holes in a rotating disc. The 37ADQO will power up with the output transistor OFF. This transistor turns ON for the first time on the approach of a 'tooth'. After the first tooth, the 37ADQO will not miss a target. Another option available is the 37ADQ sensor, a true zero speed Hall Effect Gear Tooth sensor which will never miss a pulse, and is the best choice for detecting 4-24 pitch gears with evenly spaced teeth. Check our website or call us to discuss all of our dual output gear tooth and quadrature speed sensor options.

37ADQO-RT, Electrical & Functional Specifications

ABSOLUTE MAX LIMITS	MIN	MAX	UNITS
Supply Voltage, Vcc	-15	+30	Volts DC
Voltage applied to output	-0.3	+30	Volts
Current into output	--	30	mA
Load Capacitance	--	0.01	uF
Current out of output	--	5V/499	mA
Load Dump, 40mS	--	TBD	Volts

ELECTRICAL SPECS	CONDITIONS	MIN	MAX	UNITS
Temperature Range *	Operating	-40	+110*	Deg C
Supply Voltage, Vcc	Over temperature	+3.5	+24	Volts DC
Supply Current, Output Off	Into Vcc	+3	+15	mA
Frequency Range	Near Zero Speed	0.1	15k	Hz
Vol, Low Level Vout	I sink < 20 mA	0	0.4	Volts
Yoh, High Level Vout	I source < 1 mA	4.25	5.25	Volts
Internal pull up resistor	From +5V to Vout	490	510	Ohms
Output Rise Time 10-90%	R pu=1k, C < 100pF	--	2.0	uS
Output Fall Time 90-10%	R pu=1k, C < 100pF	--	1.0	uS
ESD **	Nondestructive	--	2000	Volts
EMI **	20k to 1 G Hz	--	20	V/M

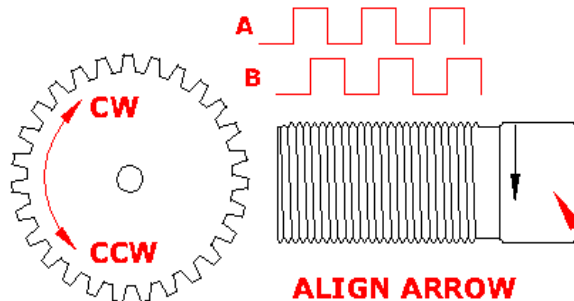
* T max = 150°C is available, contact factory.

** TBD means specifications not available upon release. CMOS IC is static sensitive

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 B *** Non-Contacting, Phase Angle 5° to 175° over entire air gap range

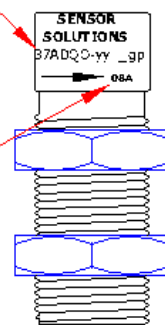
ALIGNED AS SHOWN, CH A LEADS CH B FOR CW ROTATION



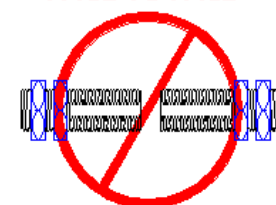
ALIGN ARROW PARALLEL TO GEAR +/- SKEW ANGLE AS SHOWN

CHARACTERISTIC-OPTION_GEAR PITCH MARKED ON THIS SURFACE, yy=OPTION, gp=GEAR PITCH (e.g. _08 = 8 PITCH GEAR)

DATE CODE, THIS SURFACE



DO NOT CONTACT FACE TO FACE



CONTACT WITH OTHER MAGNETS MAY REDUCE THE MAXIMUM OPERATING GAP