

The HKT30 series are high performance, low cost, two and three channel optical incremental encoders. Each encoder contains a lensed LED source, an integrated circuit with detectors and circuitry, and a code-wheel which rotates between the emitter and detector IC. These encoders may be quickly and easily mounted to a motor. The quadrature signals and the index pulse are accessed through five 0.025 inch square pins located on 0.1 inch centers.

Features:

No signal adjustment required, Low cost, Resolutions up to 1024 counts per revolution, Small size, -40° C to 100° C operating temperature, TTL compatible

Applications:

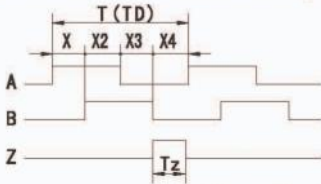
The HKT30 series provide motion detection at a low cost, making them ideal for high volume applications. Typical applications include printers, plotters, tape drives, positioning tables, and automatic handlers.



◆ TECHNICAL SPECIFICATIONS

◆ Output waveform

90° Output phase difference, CW rotation (CW rotation as seen from fit surface)



Square-wave accuracy: $X_1 + X_2 = 1/2T \pm 1/12T$
 $X_3 + X_4 = 1/2T \pm 1/12T$

Pitch error of period: $\pm 0.01T$

Pitch error of phase position: $\leq 1/18T$

Z phase: $T_z = 1/4T$ (1T, 1/2T, 1/4T...)

Period of pulses: $T = 360^\circ / N$ (N : output pulses)

Signal accuracy: $X_n = 1/4T \pm 1/12T$ (n=1, 2, 3, 4)

A leads B clockwise when viewing the encoder shaft end, The position of Z phase against A, B phase is not specified.

◆ Terminal assignment

Cable code	1	2	3	4	5	6	7	8
Cable Color	Black	Red	Green	Brown	Grey	White	Yellow	Orange
Line driver output	0V	Vcc	SIG A	SIG A	SIG B	SIG B	SIG Z	SIG Z
Cable code	1	2	3	4	5	-	-	-
Cable Color	Black	Yellow	Green	Red	White	-	-	-
Voltage output	0V	SIG Z	SIG A	Vcc	SIG B	-	-	-

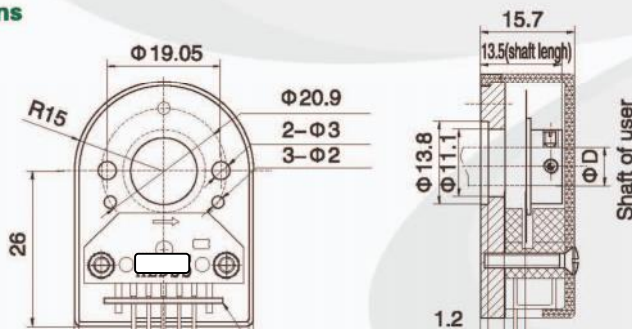
◆ Ordering code

0-GND Z ttl out A ttl out +5Volt B ttl out

HKT30	04	W	—	001	G	1000	B	—	5	E
Series	Hollow Shaft Diameter	Encoder Module	Sequence Number	Connection	Number of Pulses	Output Signals	Supply Voltage	Output Circuit		

Series: HKT30, Hollow shaft diameter: $\Phi 4\text{mm}$, Radial output cable: G, Number of pulses: 1000p/r, Output signals: AB, Supply voltage: 5V DC, Output circuit: Voltage, Record: HKT3004W-001G1000B-5E

◆ Dimensions



① Distance between code-wheel and bottom

ELECTRICAL SPECIFICATIONS	
Output wave	Square wave
Output signals	A,B phase or A,B,Z phase
Current consumption	$\leq 40\text{mA}$
Output current	0~5mA
Response Frequency	0~100KHz
Output phase difference	$90^\circ \pm 45^\circ$
Supply voltage	5V DC
Signal level	$V_H \geq 85\%V_{CC}, V_L \leq 0.3V$
Number of pulses	50, 100, 200, 256, 360, 400, 500, 512 (1000, 1024 only have AB phase) (Other number of pulse available on request)
Output circuit	Line driver, Voltage
MECHANICAL SPECIFICATIONS	
Rotor inertia of code-wheel	Appr. $6.0 \times 10^{-8} \text{Kg} \cdot \text{m}^2$
Hollow shaft diameter	$\leq \Phi 8\text{mm}$
Shock resistance	980m/s^2 , 6ms, 2 times each on XYZ
Vibration proof	50m/s^2 , 10~200Hz, 2 hours each on XYZ
Working life	MTBF $\geq 50000\text{h}$ (+25°C, 2000rpm)
Weight	Appr. 20g (with 0.5 meter cable)
ENVIRONMENTAL SPECIFICATIONS	
Working humidity	30~85% (No condensation)
Storage temperature	-40°C~110°C
Working temperature	-25°C~100°C
Weld temperature	$\leq 260^\circ\text{C}$
Protection class	IP50