CUI INC

date 07/2008

PART NUMBER: NSN **DESCRIPTION:** incremental shaft type encoder

ELECTRICAL SPECIFICATIONS

output waveform	square wave
output signals	A, B, Z phase
frequency response	200 kHz
supply voltage	4.5 V ~ 13.2 V dc (voltage output, open collector output), 10.8 V ~ 26.4 V dc (open collector HV output)
output current	≤30 mA
output voltage "H"	Vcc - 1 V (voltage output)
"L"	≤0.5 V
output resolution (ppr)	20, 40, 50, 60, 100, 200, 300, 360, 500, 600, 1000, 1024, 1250, 1800, 2000, 2048, 2500, 3600, 4096, 5000
waveform rise/fall time	≤1 μs

MECHANICAL SPECIFICATIONS

max shaft load, radial:	78.4 N
axial:	39.2 N
starting torque	19.6×10^{-3} N·m max.
angular acceleration	1×10^{5} rad/s^2
moment of inertia	6×10^{-6} kg·m^2
max rotational speed	5000 RPM (7000 RPM optional)
shock resistance	490 m/s^2, 11 ms, 3 times each on XYZ
vibration proof	10 ~ 55 Hz, 1.5 mm, 2 hours
rotational life	1×10^{8} rpm·hrs
degree of protection	IP54
weight	700 g max.

ENVIRONMENTAL SPECIFICATIONS

operating temp	-10° to +70° C
storage temp	-30° to +80° C
humidity	RH 85% max., non-collecting

ELECTRICAL CONNECTIONS

Pin#	Description	Pin#	Description
1	Power Source	6	0V Common
2	F, G	7	0V Common
3	Signal Z		
4	Signal B		
5	Signal A		

Receptacle Sanwa Connector Ltd. SCK-2007R

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ORDERING INSTRUCTIONS

NSN-XXXX-2MXX-F

Resolution (PPR):

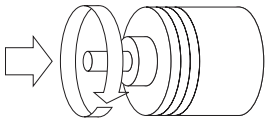
002 = 20 PPR	10 = 1000 PPR
004 = 40 PPR	1024 = 1024 PPR
005 = 50 PPR	1250 = 1250 PPR
006 = 60 PPR	18 = 1800 PPR
01 = 100 PPR	20 = 2000 PPR
02 = 200 PPR	2048 = 2048 PPR
03 = 300 PPR	25 = 2500 PPR
036 = 360 PPR	36 = 3600 PPR
05 = 500 PPR	4096 = 4096 PPR
06 = 600 PPR	50 = 5000 PPR

Output type:
"no entry" = Voltage output
C = Open collector output
HC = Open collector HV output

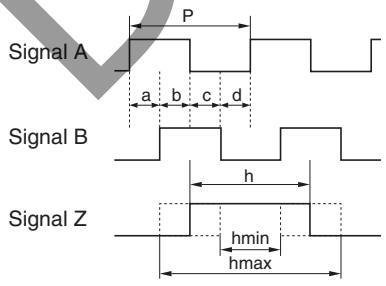
CIRCUIT CONNECTIONS

OUTPUT WAVEFORM

CW → Rotating Toward Clockwise Viewed from an Arrow



Rising point of A-Signal is always at one point while Z-Signal is at H-Level in CW.



$P = \frac{1}{PPR}$

$\frac{P}{2} \leqq h \leqq \frac{3P}{2}$

$a, b, c, d = \frac{P}{4} \pm \frac{P}{8}$

Wave Ratio (Duty); 50 ± 25 (%)

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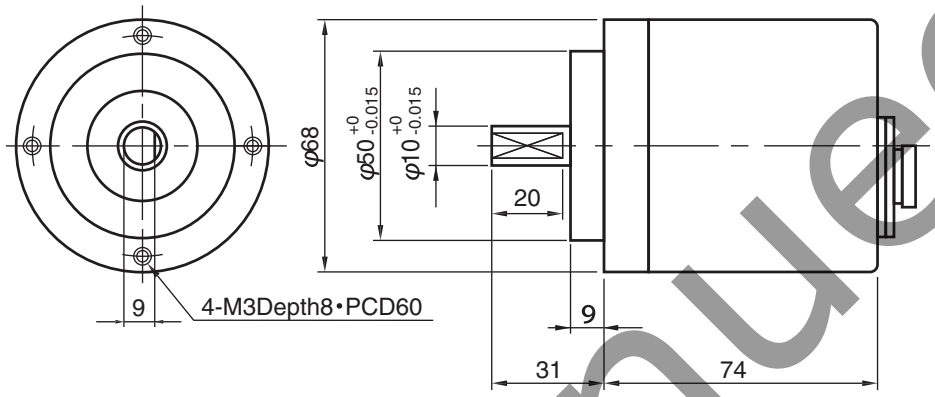
MECHANICAL DRAWING



F : With Flange