

**PART NUMBER:** NSE**DESCRIPTION:** incremental shaft type encoder**ELECTRICAL SPECIFICATIONS**

output waveform		square wave
output signals		A, B, Z phase, inverse A, B, Z phase
current consumption		≤80 mA (voltage output), ≤60 mA (open collector, C-MOS), ≤100 mA (PNP mode), ≤90 mA (push-pull), ≤150 mA (line driver output)
frequency response		≤200 kHz, ≤50 kHz (PNP mode only)
supply voltage		4.5 V ~ 13.2 V dc (voltage output, open collector output) 10.8 V ~ 26.4 V dc (open collector output/ high voltage, PNP mode) 4.75 V ~ 5.25 V dc (line driver), 4.5 V ~ 5.5 V dc (C-MOS)
output current		≤20 mA, ≤40 mA (push-pull output only)
output voltage	“H”	V _{cc} - 1 V (voltage output, PNP mode ²), V _{cc} - 3 V (push-pull output), 2.5 V or more (line driver)
	“L” ¹	0.5 V max (voltage output, open collector, line driver), 3 V max (push-pull),
output resolution (ppr)		20, 30, 32, 40, 50, 60, 100, 125, 200, 250, 256, 300, 360, 400, 500, 512, 600, 800, 900, 1000, 1024, 1200, 1500, 1800, 2000, 2048, 2500, 3600
waveform rise/fall time		1 μs or less, 200 ns or max (line driver)

MECHANICAL SPECIFICATIONS

max shaft load, radial:	29.4 N
axial:	19.6 N
starting torque	9.8 x 10 ⁻⁴ N·m max
angular acceleration	1x10 ⁵ rad/s ²
moment of inertia	8x10 ⁻⁷ kg·m ²
max rotational speed	6000 RPM
shock resistance	490 m/s ² , 11 ms, 3 times each on XYZ
vibration proof	10 ~ 50 Hz, double amplitude 1.5 mm
weight	100 g max

ENVIRONMENTAL SPECIFICATIONS

operating temp	-10° to +70° C
storage temp	-30° to +80° C
humidity	RH 85% max, non-collecting
degree of protection	IP50

NOTE:

1. at maximum output current
2. maximum source current

ELECTRICAL CONNECTIONS

	Color of Lead Wire	Description
2		
2M		
2C	Red	Power Source
2MC	Black	0V Common
2HC	Green or Blue	Signal A
2MHC	White	Signal B
2HCP	Yellow	Signal Z
2MHCP	Shielding Braid	NC
2HT		
2MHT		

2MD	Color of Lead Wire	Description	Color of Lead Wire	Description
	Red	Power Source	White	Signal B ₋
	Black	0V Common	Gray	Signal B
	Green	Signal A ₋	Yellow	Signal Z ₋
	Blue	Signal A	Orange	Signal Z
	Shielding Braid	NC		

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DESCRIPTION: incremental shaft type encoder

ORDERING INSTRUCTIONS

NSE-XXXX-2XXXX-XXX-XXX-00

Resolution (PPR):

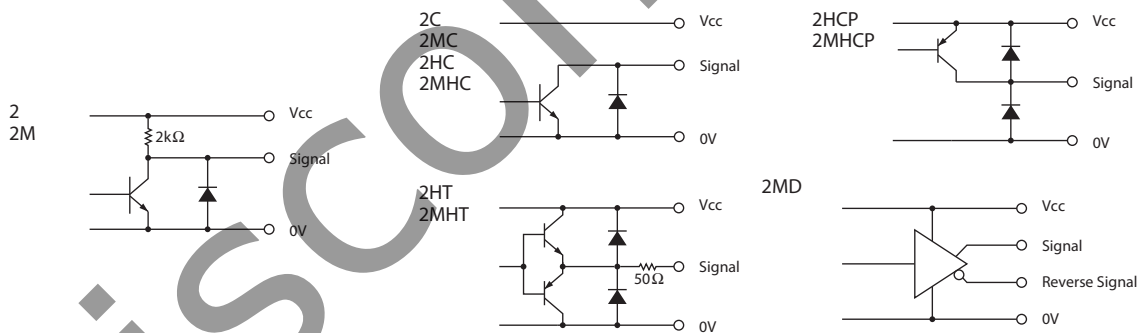
002 = 20 PPR	05 = 500 PPR
003 = 30 PPR	0512 = 512 PPR
0032 = 32 PPR	06 = 600 PPR
004 = 40 PPR	08 = 800 PPR
005 = 50 PPR	09 = 900 PPR
006 = 60 PPR	10 = 1000 PPR
01 = 100 PPR	1024 = 1024 PPR
0125 = 125 PPR	12 = 1200 PPR
02 = 200 PPR	15 = 1500 PPR
025 = 250 PPR	18 = 1800 PPR
0256 = 256 PPR	20 = 2000 PPR
03 = 300 PPR	2048 = 2048 PPR
036 = 360 PPR	25 = 2500 PPR
04 = 400 PPR	36 = 3600 PPR

Channels:
"no entry" = AB
M = AB + Z

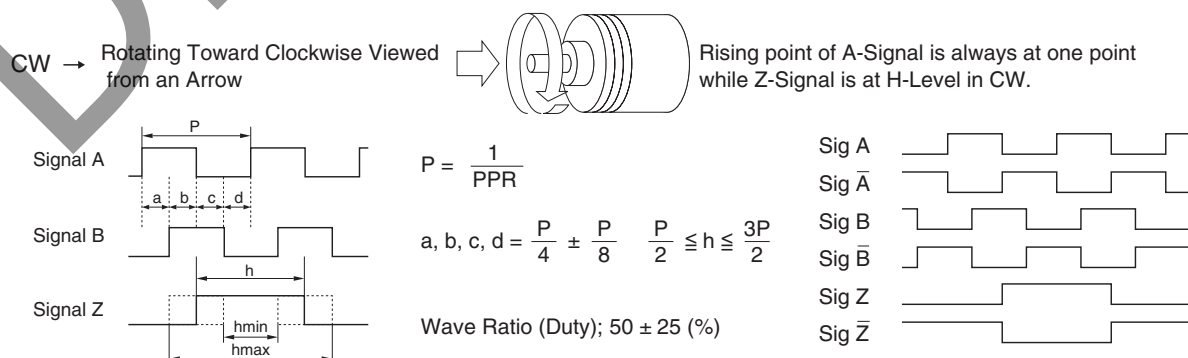
Shaft diameter: Cable length:
635 = ø6.35 mm 050 = 0.5 m*
600 = ø6 mm 100 = 1.0 m
300 = 3.0 m
*standard

Output type:
"no entry" = Voltage output
C = Open collector output
HC = HV open collector output
HCP = PNP HV open collector output
HT = Push-pull / high voltage output
D = Line driver output

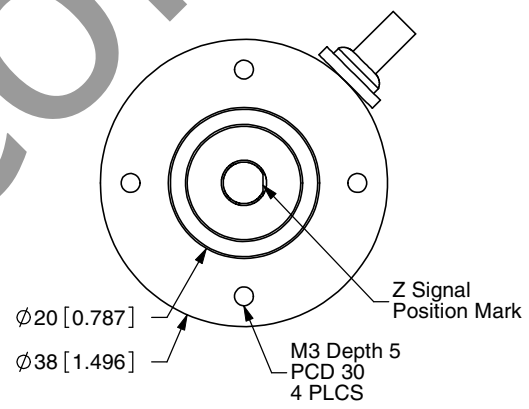
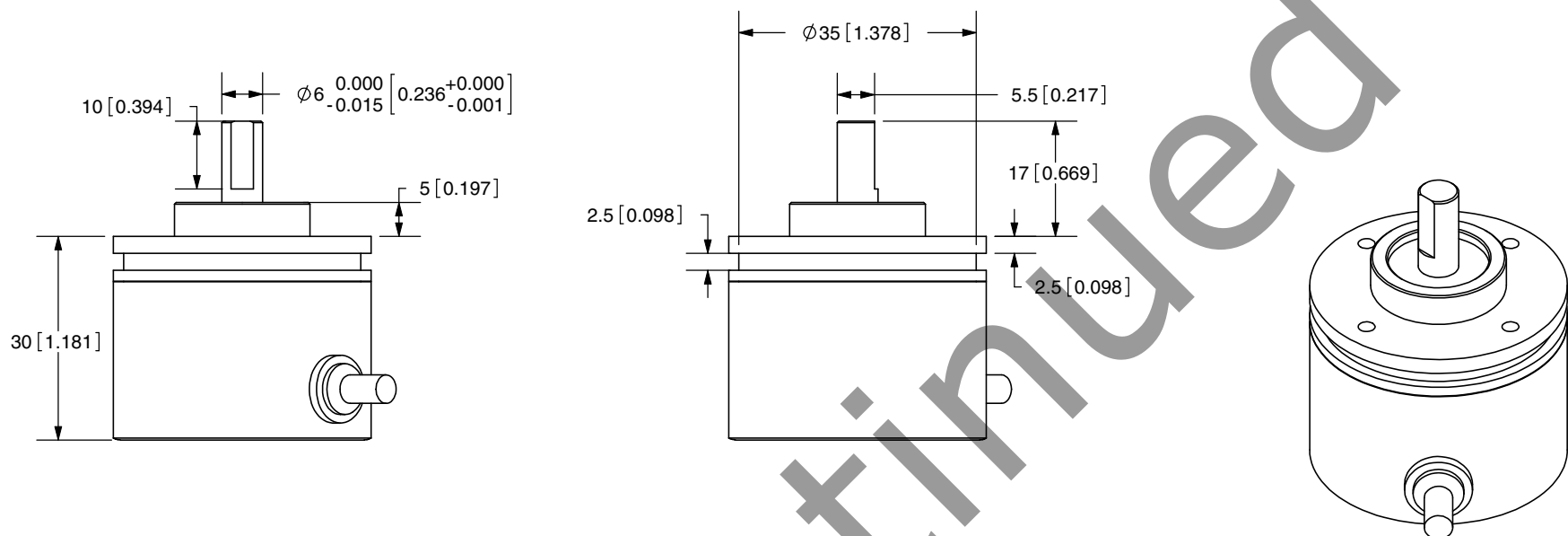
CIRCUIT CONNECTIONS



OUTPUT WAVEFORM



REV.	DESCRIPTION	DATE
A	NEW DRAWING	9/10/2007
B	end-of-life	06/07/2012



TOLERANCE:
±0.3mm UNLESS OTHERWISE
SPECIFIED



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TITLE: Incremental Encoder		REV: B
PART NO. NSE		UNITS: MM [INCHES]
DRAWN BY: JMS	APPROVED BY:	SCALE: 1:1

Cable Color	Red	Black	Green	Blue	Shielding Braid	White	Gray	Yellow
Output Type	Power	0V common	Signal A	Signal A̅	NC	Signal B	Signal B̅	Signal Z
Cable Color	Orange	-	-	-	-	-	-	-
Output Type	Signal Z	-	-	-	-	-	-	-

NSE

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Discontinued