

SE10 Series



- Through Hollow Shaft - Diameter Ø25 ~ Ø42.6 mm. Accept OEM diameter
- NSK / NACHI made in Japan bearing with heavy axial and radial direction load.
- Inversion of polarity protection.
- 3 Years Warranty.

◆ ORDERING INFORMATION

SE10 <input type="checkbox"/> - <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> - <input type="checkbox"/> <input type="checkbox"/> - <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> # <input type="checkbox"/> <input type="checkbox"/>			Model Available																																																																																																		
1	2	3	4 5 6 7 8																																																																																																		
1	Shaft Structure	0 – Key way 1 – Set screw 2 – Key way + Set screw	<ul style="list-style-type: none"> ● Shaft Diameter - Shaft Structure <table border="1"> <tr><td></td><td>25</td><td>26</td><td>27</td><td>28</td><td>30</td><td>32</td><td>35</td><td>36</td></tr> <tr><td>SE100</td><td></td><td></td><td></td><td></td><td>*</td><td></td><td>*</td><td></td></tr> <tr><td>SE101</td><td>*</td><td>*</td><td>*</td><td>*</td><td>*</td><td>*</td><td>*</td><td>*</td></tr> <tr><td>SE102</td><td></td><td></td><td></td><td></td><td>*</td><td></td><td>*</td><td></td></tr> </table> <table border="1"> <tr><td></td><td>38</td><td>40</td><td>42</td><td>42.6</td></tr> <tr><td>SE100</td><td></td><td>*</td><td></td><td></td></tr> <tr><td>SE101</td><td>*</td><td>*</td><td>*</td><td>*</td></tr> <tr><td>SE102</td><td></td><td>*</td><td></td><td></td></tr> </table> <ul style="list-style-type: none"> ● Shaft Diameter – Resolution <table border="1"> <tr><td></td><td>25</td><td>26</td><td>27</td><td>28</td><td>30</td><td>32</td><td>35</td><td>36</td></tr> <tr><td>512</td><td>*</td><td>*</td><td>*</td><td>*</td><td>*</td><td>*</td><td></td><td></td></tr> <tr><td>1024</td><td>*</td><td>*</td><td>*</td><td>*</td><td>*</td><td>*</td><td>*</td><td>*</td></tr> </table> <table border="1"> <tr><td></td><td>38</td><td>40</td><td>42</td><td>42.6</td></tr> <tr><td>512</td><td></td><td></td><td></td><td></td></tr> <tr><td>1024</td><td>*</td><td>*</td><td>*</td><td>*</td></tr> </table> 		25	26	27	28	30	32	35	36	SE100					*		*		SE101	*	*	*	*	*	*	*	*	SE102					*		*			38	40	42	42.6	SE100		*			SE101	*	*	*	*	SE102		*				25	26	27	28	30	32	35	36	512	*	*	*	*	*	*			1024	*	*	*	*	*	*	*	*		38	40	42	42.6	512					1024	*	*	*	*
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4	Output Phase	2 – A/B Phase 3 – A/B/Z Phase	<table border="1"> <thead> <tr> <th rowspan="2">Supply Voltage</th> <th rowspan="2">Output</th> <th colspan="2">Phase</th> </tr> <tr> <th>A/B</th> <th>A/B/Z</th> </tr> </thead> <tbody> <tr> <td rowspan="2">5V</td> <td>Voltage</td> <td>2V</td> <td>3V</td> </tr> <tr> <td>Line driver</td> <td>2L</td> <td>3L</td> </tr> <tr> <td rowspan="3">7~24V</td> <td>Open Collector</td> <td>2O</td> <td></td> </tr> <tr> <td>Push-Pull</td> <td>2P</td> <td>3P</td> </tr> <tr> <td>Line driver</td> <td>2M</td> <td>3M</td> </tr> </tbody> </table>	Supply Voltage	Output	Phase		A/B	A/B/Z	5V	Voltage	2V	3V	Line driver	2L	3L	7~24V	Open Collector	2O		Push-Pull	2P	3P	Line driver	2M	3M																																																																											
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5	Output Circuit Page 4	L – Line Driver, 5V In / 5V Out M – Line Driver, 12V In / 5V Out O – Open Collector P – Push-Pull V – Voltage																																																																																																			
6	Shield Cable Length	Blank – 0.5M (Standard) E – 7M																																																																																																			
7	Accessory Options Page 4	0 – Option 0 (Standard) 1 – Option 1 2 – Option 2 3 – Option 3 7 – Option 7																																																																																																			
8	Units in box	Blank – 1 unit T – 10 units																																																																																																			

◆ TECHNICAL DATA

Parameter	Unit	Specification			Symbol
ELECTRICAL					
Output circuits		Push-Pull	Open Collector	Line Driver	
Voltage	V	DC 7~24 V \pm 10%	DC 7~24 V \pm 10%	DC5V / DC7~24V \pm 5%	V_{CC}
High Level Output Voltage	V	$V_{CC} - 2.5$ Min	$V_{CC} - 0.5$ Min	2.5 Min	V_H
Low Level Output Voltage	V	1.5 Max	0.6 Max	1.0 Max	V_L
Rise Time (10% \rightarrow 90%)	* μ sec	0.5 Max	2 Max	0.2 Max	T_r
Fall Time (90% \rightarrow 10%)	* μ sec	0.5 Max	2 Max	0.2 Max	T_f
Input Current – No Load	mA	45 Max.	45 Max.	100 Max.	
Output Current per Channel	mA	50 Max.			
Resolution	PPR	512 / 1024			
Max. Frequency Response:	kHz	50			
Output Waveforms		Square Waves			
Pulse Width Error	** $^{\circ}$ e	$P = T/2 \pm T/10$			ΔP
Logic State Width Error	** $^{\circ}$ e	$T1=T2=T3=T4 = T/4 \pm T/8$			ΔS
Phase Error	** $^{\circ}$ e	$T = T_0 \pm 0.05T_0$			$\Delta \theta$
Protection		<ul style="list-style-type: none"> ● Inversion of polarity protection ● Outputs Short-circuit protection 			
MECHANICAL					
Shaft Diameter	mm	$\varnothing 25 \sim \varnothing 32$	$\varnothing 35 \sim \varnothing 38$	$\varnothing 40 \sim \varnothing 42.6$	
Moment of inertia	Kg-cm ²	1.9	3	4.5	
Shaft load - Radial Direction	Kg	20 Max.	20 Max.	10 Max.	
Shaft load - Axial Direction	Kg	10 Max.	10 Max.	5 Max.	
Speed	rpm	2500 Max.			
Starting Torque at 25 $^{\circ}$ C	kg-cm	1.0 Max.			
Angular acceleration	rad/s ²	10^4 Max.			
Shaft axial end play	mm	0.05 Max.			
Shaft runout (TIR)	mm	0.05 Max.			
Shaft perpendicularity (TIR)	mm	0.05 Max.			
Bearing Life		40000 hr - 1800rpm, 25 $^{\circ}$ C			
Net weight	kg	0.8			
Gross weight	kg	0.9			
ENVIRONMENT					
Operating Temperature	$^{\circ}$ C	-10 \sim +70			
Storage Temperature	$^{\circ}$ C	-20 \sim +80			
Relative Humidity		95% Max. without condensation			
Shock	***	50G 11ms - 3 times each in X,Y,Z directions			
Vibration	****	10~55Hz 1.5mm(P-P) each in X,Y,Z directions for 2 hrs			
Protection		IP44			

*: FIG. 1

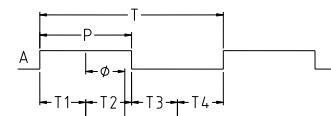
**: FIG. 2

***: According to JIS-C5026

****: According to JIS-C5025



FIG.1



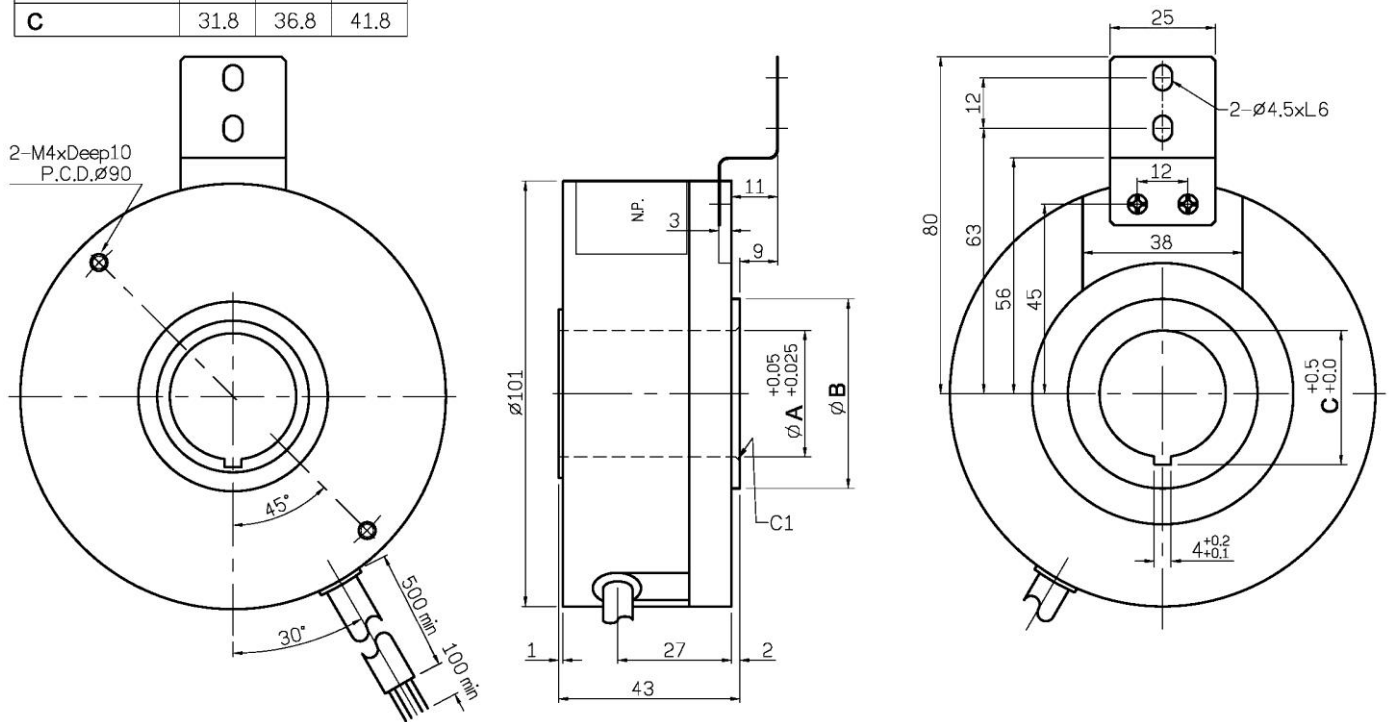
Rotation Direction: Clockwise (CW) - Viewed from the Fixed Side Axis of the Encoder

FIG.2

◆ DIMENSION

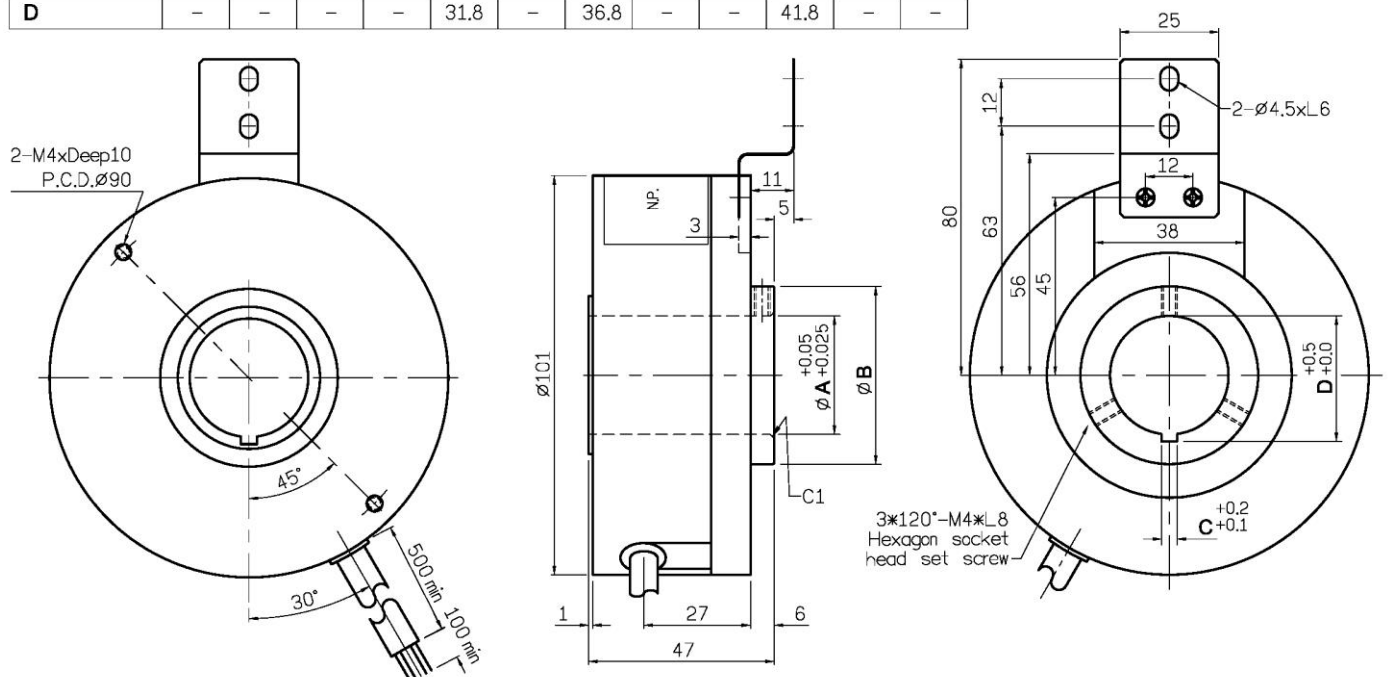
● SE100 Series

A (Shaft DIA.)	30	35	40
B	42	47	52
C	31.8	36.8	41.8

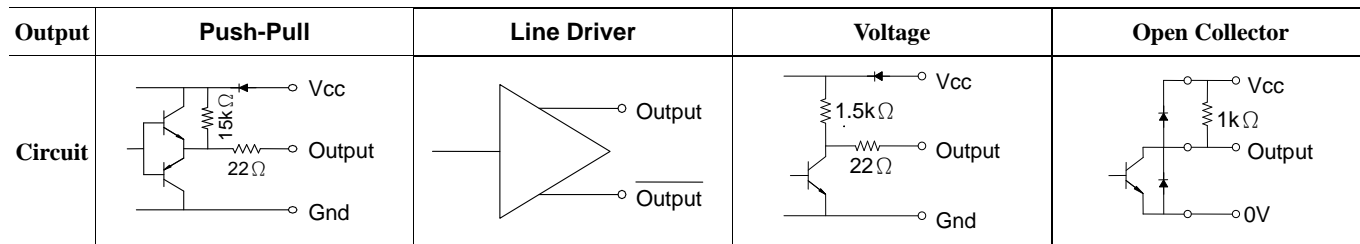


● SE101 / SE102 Series

SE101 / SE102 Series												
A (Shaft DIA.)	25	26	27	28	30	32	35	36	38	40	42	42.6
B	42	42	42	42	42	42	47	47	47	52	52	52
SE102 Series												
C	-	-	-	-	4	-	4	-	-	4	-	-
D	-	-	-	-	31.8	-	36.8	-	-	41.8	-	-



◆ OUTPUT CIRCUIT



◆ CONNECTION

- 2P / 2O / 2V – Shield Cable, 4C*22AWG, O.D.: Ø 6mm

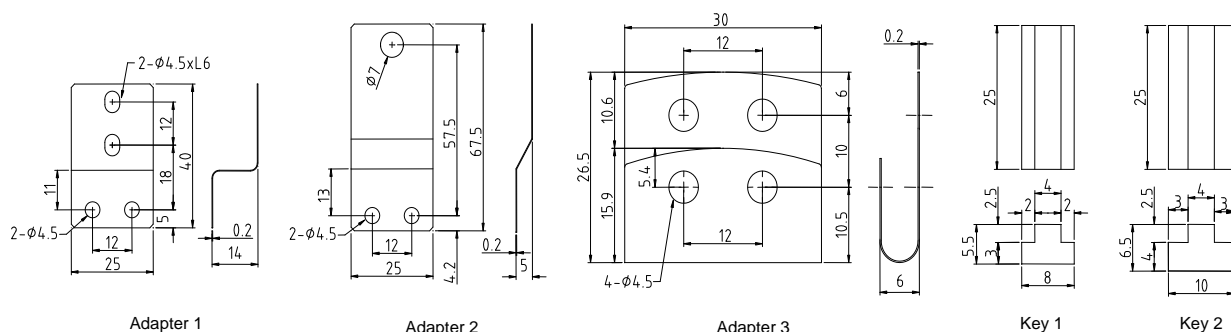
Output Circuit	Red	Black	Green	Blue
A/B Phase, Push-Pull	V _{CC}	Gnd	A	B
A/B Phase, Open Collector	V _{CC}	Gnd	A	B
A/B Phase, Voltage	V _{CC}	Gnd	A	B

- 2L / 2M / 3P / 3L / 3M – Shield Cable, 8C*26AWG, O.D.: Ø 6mm

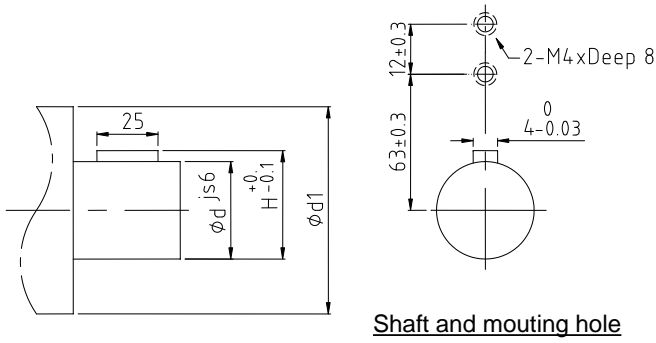
Output Circuit	Red	Black	Green	Blue	Brown	Yellow	Orange	White
A/B/Z Phase, Push-Pull	V _{CC}	Gnd	A	B	Z	-	-	-
A/B Phase, Line Driver	V _{CC}	Gnd	A	B	-	\bar{A}	\bar{B}	-
A/B/Z Phase, Line Driver	V _{CC}	Gnd	A	B	Z	\bar{A}	\bar{B}	\bar{Z}

◆ ACCESSORY OPTIONS

Option	0	1	2	3
Parts	1). Adapter 1 x 1pcs 2). Screw M4*L8 x 4pcs	1). Adapter 2 x 1pcs 2). Key 1 x 1pcs 3). Screw M4*L8 x 2pcs	1). Adapter 2 x 1pcs 2). Key 2 x 1pcs 3). Screw M4*L8 x 2pcs	1). Adapter 2 x 1pcs 3). Screw M4*L8 x 2pcs
Option	7			
Parts	1). Adapter 3 x 1pcs 2). Screw M4*L8 x 4pcs			



◆ MOUNTING CONSIDERATIONS



Model	d *	H	d1 min
SE100-□□□□-30	30±0.008	31.5	34
SE100-□□□□-35	35±0.008	36.5	39
SE100-□□□□-40	40±0.008	41.5	44
SE101-□□□□-30	30±0.008	-	34
SE101-□□□□-35	35±0.008	-	39
SE101-□□□□-40	40±0.008	-	44

* : According to JIS B0401

