

1. Electrical characteristics

Rated voltage	3.1 V						
Rated current	3.4 A						
Max. input	21.1 W						
Step angle	1.8 °						
Step accuracy(positional)	1.8 ° ± 0.09 °			at		Rated current DUAL	
Max. holding torque	3.1 Nm { 31.6 kgfcm }	MIN.		at		Rated current DUAL	
Detent torque	147 mNm { 1500 gfcm }	REF.					
Pull out torque	- mNm { - gfcm }	MIN.		at	-	Hz	
Pull in torque	- mNm { - gfcm }	MIN.		at	-	Hz	
Max. no load response	- Hz	MIN.					
Max. slew speed	- Hz	MIN.					
Driving condition	DC V			A[φ]	DUAL		
Winding resistance	0.9 Ω ± 0.14 Ω						
Winding inductance	6.4 mH	REF.		at 1 kHz, 1 V[RMS]			
Insulation resistance	100M Ω						
	100M Ω MIN. with DC 500 V insulation resistance tester applied between winding and case.						
Dielectric strength	There shall be no breakdown at AC500 V (50 or 60) Hz applied for 60 s between winding and case.						
Temperature rise	-						
Class of insulation	-						
Ambient temperature	0 °C ~ +50 °C						

2. Mechanical characteristics

Direction of shaft rotation	Rotation of shaft to be CW facing mounting end when connection FIG.1 and sequenced as FIG. 2.						
Radial play	20 μm	MAX.	at 4.4 N[450 gf]	LOAD			
End play	0.2 mm	MAX.	at 49 N[5 kgf]	LOAD			
Rotor inertia	1200 gcm ²	REF.					
Mass	1800 g	REF.					

3. Environmental harmony

Composed parts are RoHS compliant.

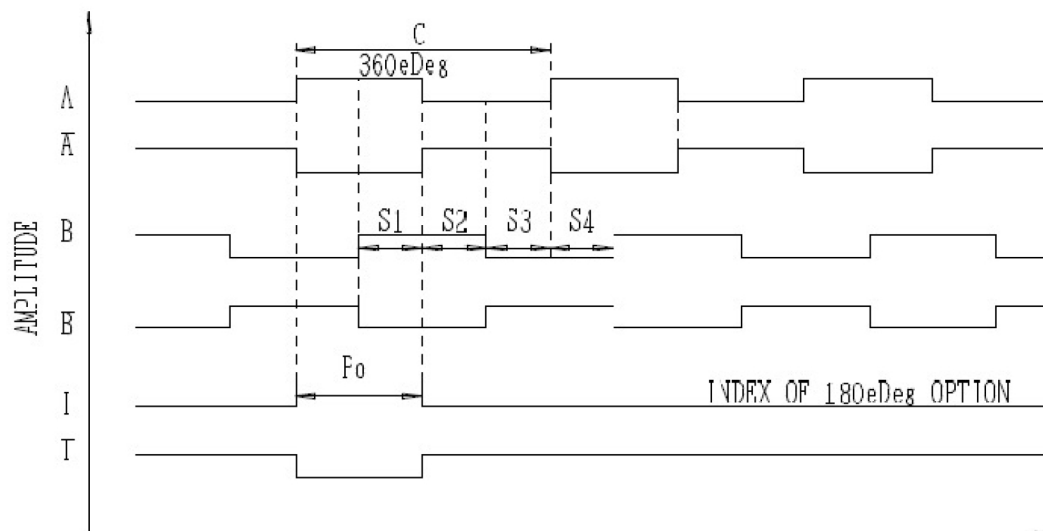
Special specifications

REFERENCE

(i) Encoder specifications

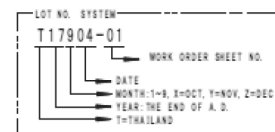
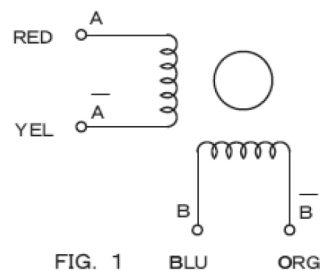
ITEM	Specifications
Encoder type	AVAGO AEDR-8501 Incremental
Detection method	Reflective surface
Output signal	A, $\bar{A}$, B, $\bar{B}$, I, $\bar{I}$ (Three channel) Line driver output
Resolution	4,000 CPR
Supply voltage	DC 5 V $\pm$ 0.25 V
Supply current	25 mA REF.
Output voltage	-0.5 V to +5.5 V
Wave form	Rectangle wave
Count frequency	220 kHz MAX. (4X)
State S_1, S_2, S_3, S_4	$(C/4) \pm (C/8)$
Index pulse width P_0	$(C/4) \leq P_0 \leq (3C/4)$
Duty	$(C/2) \pm (C/4)$

OUTPUT WAVE FORM



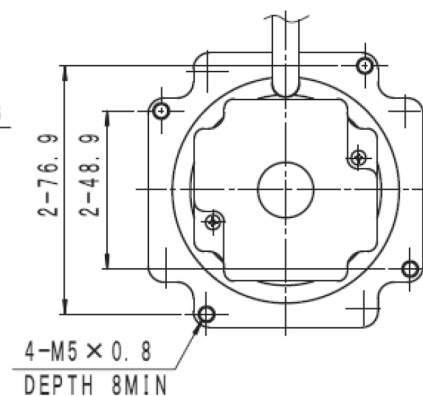
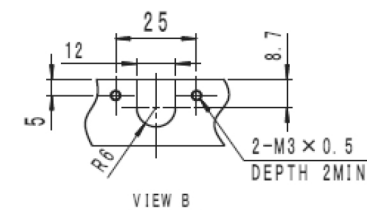
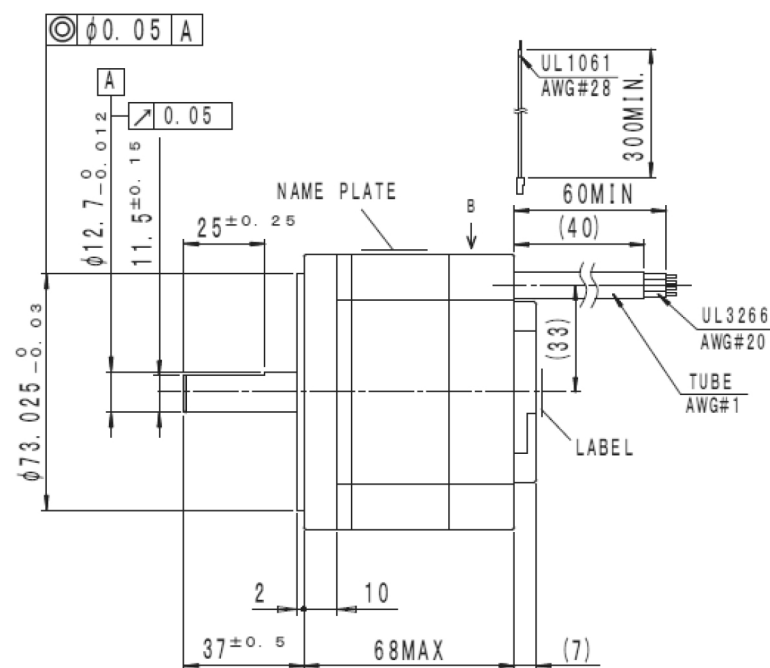
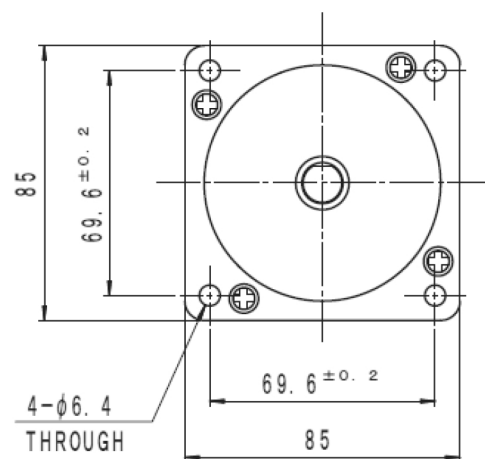
CODEWHEEL ROTATION MOVEMENT (ANTI-CLOCKWISE)
QUADRATURE SIGNALS A, B and I

STEP \ L/W COLOR	RED	BLU	YEL	ORG
1	+	+	-	-
2	-	+	+	-
3	-	-	+	+
4	+	-	-	+



FOR ENCODER

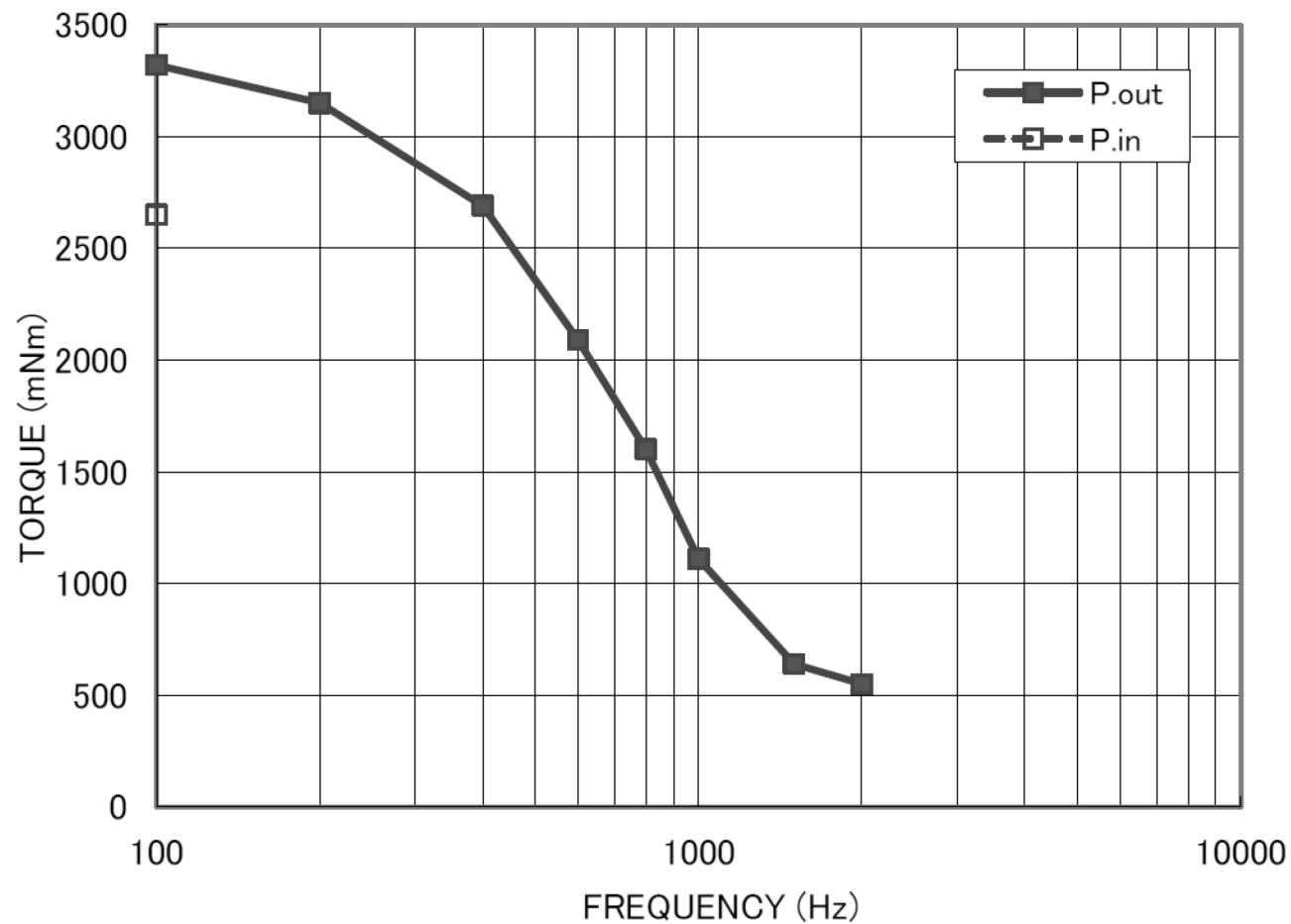
PIN NO.	SIGNAL	L/W COLOR
1	V _{cc}	RED
2	GND	BLK
3	CH. A	WHT
4	CH. $\bar{A}$	GRN
5	CH. B	BRN
6	CH. $\bar{B}$	YEL
7	CH. I	BLU
8	CH. $\bar{I}$	ORG
9	—	—
10	—	—



REFERENCE

[illegible]

SUPPLY VOLTAGE : 24V [DC]
DRIVE CURRENT : 3.4 A [PHASE]



	NO.1	
	P.out	P.in
100	3320.0	2650.0
200	3150.0	
400	2690.0	
600	2090.0	
800	1600.0	
1000	1110.0	
1500	640.0	
2000	550.0	

Hz
mNm