



Magnetic Integrated Technology

KEM2500D-8 INCREMENTAL ENCODER SPECIFICATION

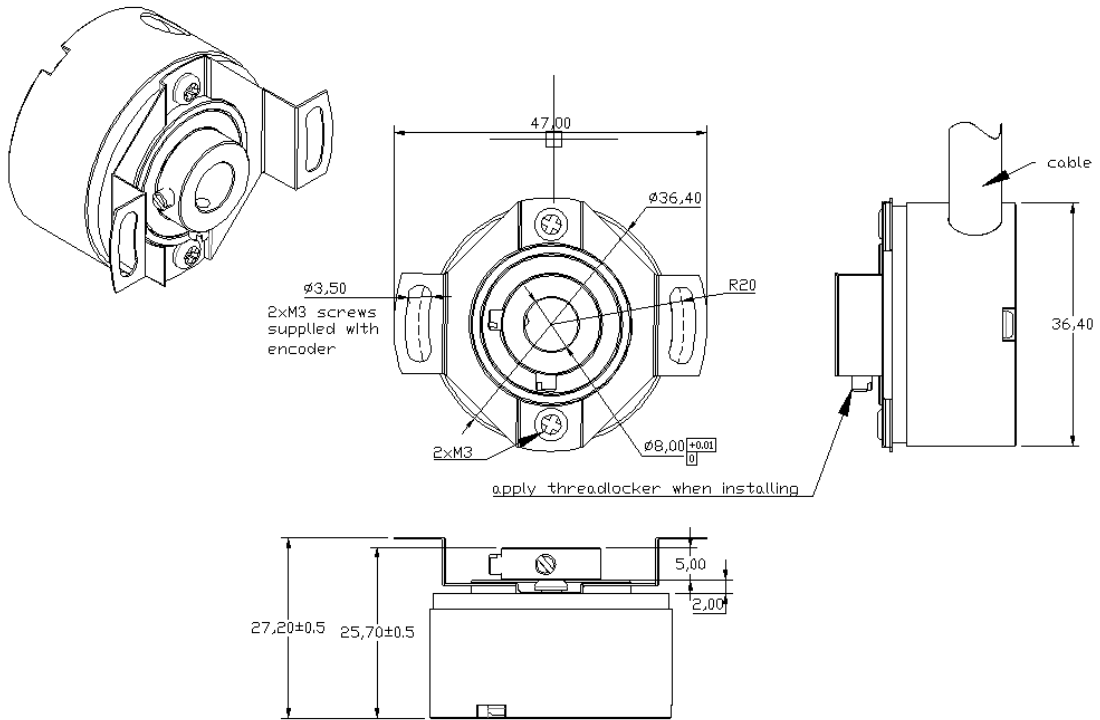
FILE NO	1-KEM2500D-8 Ver. V2.7
VER DATE	2020-7-30
FIRST RELEASE	2019-11-7

ITEM NO	MODEL	CUSTOMER P/N
1	KEM2500D-8	

Preliminary

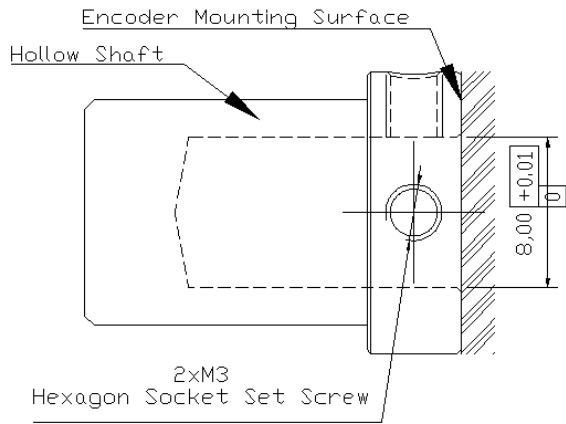
MANAGER	MARKETING	ENG	QA	CUSTOMER APPROVAL		
MODEL		PRODUCT DESCRIPTION		Encoder Assembly with 500mm length ø6 with 8-AWG#28 wire Shielded Cable		
KEM2500D-8		ABZ+UVW DIFFERENTIAL INCREMENTAL ENCODER, 2500 PPR				

1. OUTLINE DIMENSION (mm)

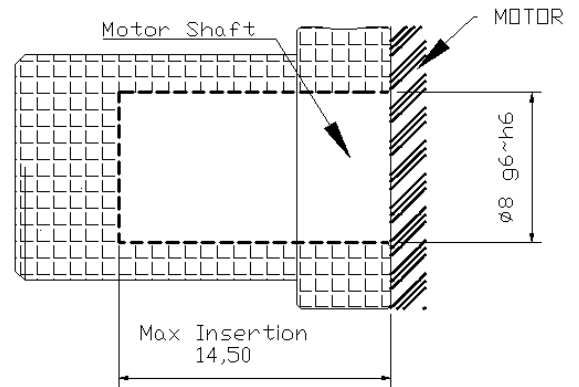


	DRAWING NO	DATE
Magnetic Integrated Tech. 承康科技	KEM2500D-8-301	2020.7.30

1-1. ENCODER HOLLOW SHAFT & MOTOR SHAFT INSTALLATION

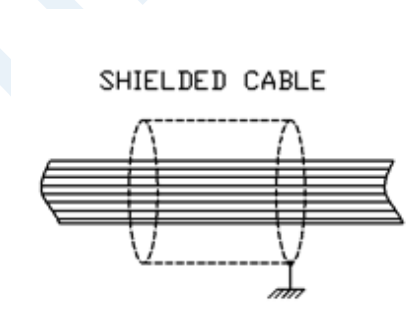


HOLLOW SHAFT DIMENSION

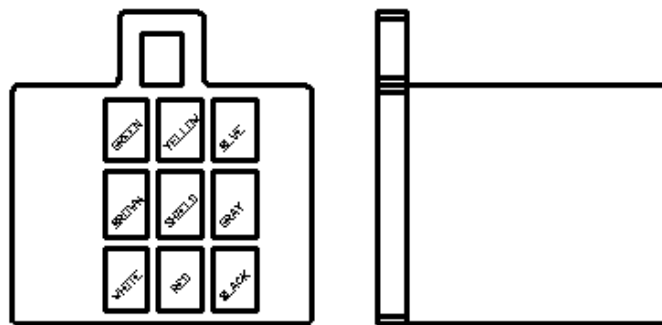
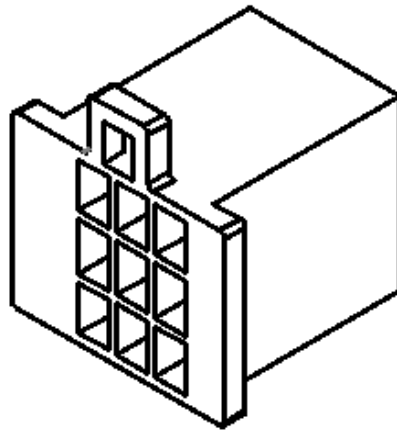


RECOMMENDED MOTOR SHAFT DIMENSION

1-2. SHIELDING WIRE CONNECTION

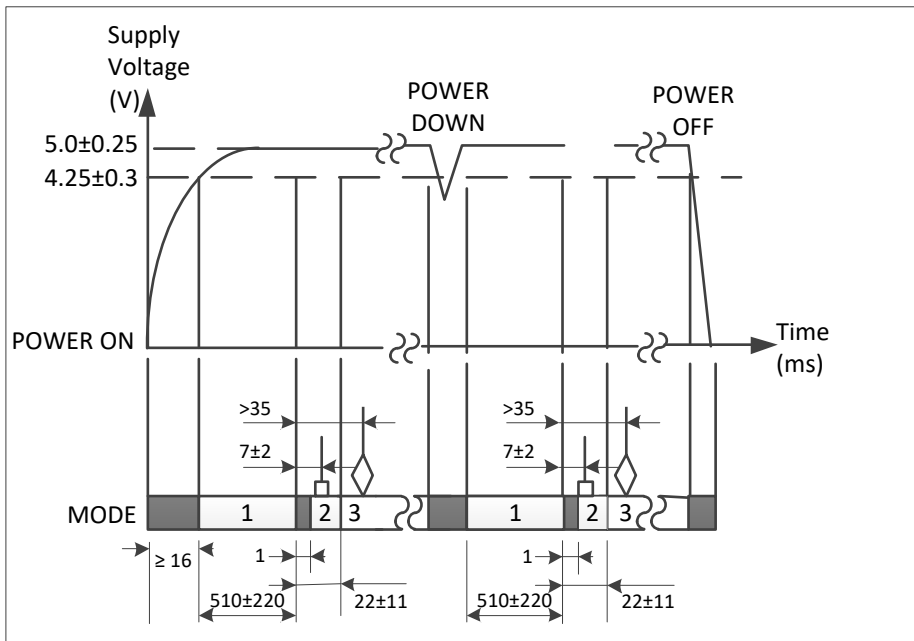


1-3. ENCODER 9-PIN FEMALE CONNECTOR



9-PIN FEMALE CONNECTOR AT ENCODER END

2. TIMING CHART



3. WIRING DESCRIPTION

Cable Specification: ϕ 5.4 shielded, 500mm length, 8-AWG#28 wire.

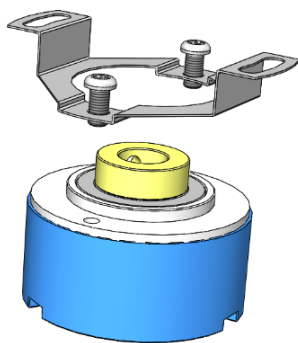
	Wire No.	Color	Function			Note
			MODE 1	MODE 2	MODE 3	
Connection	1	GREEN	HZ	U	A	AWG28
	2	YELLOW	HZ	U-	A-	"
	3	BLUE	HZ	V	B	"
	4	BROWN	HZ	V-	B-	"
	5	SHIELD	See section 1-2 drawing for wiring.			
	6	GRAY	HZ	W	Z	"
	7	WHITE	HZ	W-	Z-	"
	8	RED	>(DC5V-0.1V)			VDD
	9	BLACK	<0.1V			GND

4.	APPLICATION SCOPE	This encoder is suitable for industrial electronic products such as security monitoring equipment and BLDC motors.	
5.	MODEL & DESCRIPTION	KEM2500D-8 2500 PPR differential Incremental Encoder + 4 pole-pair UVW	
6.	APPEARANCE	There shall be no remarkable damage in visual inspection. Products shall be judged by boundary samples if there are any doubts.	
7.	DIMENSIONS	REFER TO CLAUSE 1 OUTLINE DIMENSIONS	
8. RATINGS			
NO.	ITEM	TESTING METHOD AND CONDITION	SPECIFICATION
8.1	Operating Temp		-40 ~ +85°C
8.2	Storage Temp		-40 ~ +105°C
8.3	Operating Voltage		5.0 VDC
9. SPECIFICATION			
9.1	Operating Type	Motor Shaft Operating	MMI
9.2	Resolution		2500 PPR
9.3	Output Signals	After 510±220 ms waiting status;	
9.3.1	ABZ & Differentials	22±11 ms after UVW phase	
9.3.2	B channel leading A channel	CCW, Viewed to the encoder from its mounting side	
9.3.3	Z+ & Z- channel	Pulse Width	(1±1/2) cycle period, i.e., nominally 4 LSB

9.3.4	UVW & Differentials Signals	Present time 22±11 ms	
9.3.5	U ch leading V ch; V ch leading W ch	CCW, Viewed to the encoder from its mounting side	120° electrical cycle, refer to above drawing
9.4	Rated Power		0.1W @ Vdd=5V
9.5	Noise		N/A
9.6	Operating Current	@Vdd=5.0V	Max: <20mA Typical: <10mA
9.7	Output Frequency	RPM	≤12K recommended
9.8	Output Delay	High Impedance Wait Time	510±220 ms
9.9	Output Digital Voltage	Push-pull (Iout=2mA)	HIGH: V _{OH} ≥ 4.9V LOW: V _{LO} ≤ 0.1V
9.10	Magnet	NdFeB, N35~N40 Recommended	Dimension Ø5x2 or Ø6x2; Radial magnetized.
10. RELIABILITY			
10.1	Cycle Life		Infinite
10.2	Weight		150g±10g
10.3	High Temp	96 hours@80±2°C	Output variation <0.2%;
10.4	Low Temp	96 hours@-30±2°C	Output variation <0.2%;
10.5	Humid	96 hours@60±2°C, 90~95% RH	Output variation <0.1%;

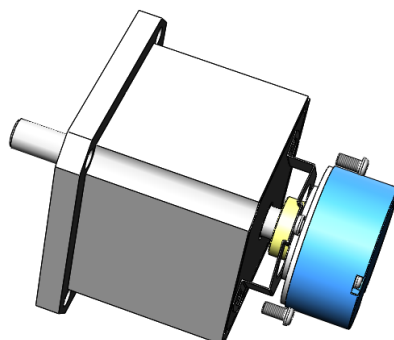
11.	ENVIRONMENTAL	ROHS	Compliant
11.1	ESD; HUMAN	MIL-STD-883G Method 3015.7	(±)1000V ~ 4000V, Step : (±)500V
11.2	ESD; MACHINE	JEDEC EIA/JESD22- A115	(±)100V ~ 300V, Step : (±)50V

12. Appendix The Installation

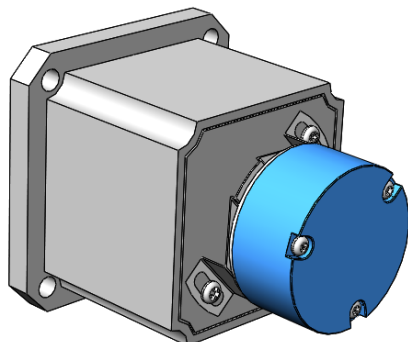


KEM encoder is usually using hollow shaft to allow motor shaft directly insert into the hollow, it shall be mounted by a flexible mounting plate as shown in figure above. Make sure to fix the shaft in that the mounting plate will not cause burden the ball bearing to the encoder and will not cause damage to the mounting plate.

Encoders are usually installed at the rear end of motor, shown as below pictures. The 8mm dia. motor shaft is standard and 6mm is optional. Insert the motor rear shaft into encoder's hollow shaft for about 12mm depth, tighten the encoder's flexible mounting bracket firmly onto motor rear end by two M3 screws.



Do not couple the encoder shaft with the rigid driving connector, as the ball bearing of the encoder may be damaged due to an excessive load.



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