Rotary Encoder

User Manual

Thanks for your choosing our Toky Brand Rotary Encoder. Following is the Notice information when you are installing and using our product.Please read this manual carefully before you are using our product.

Proper Using Method

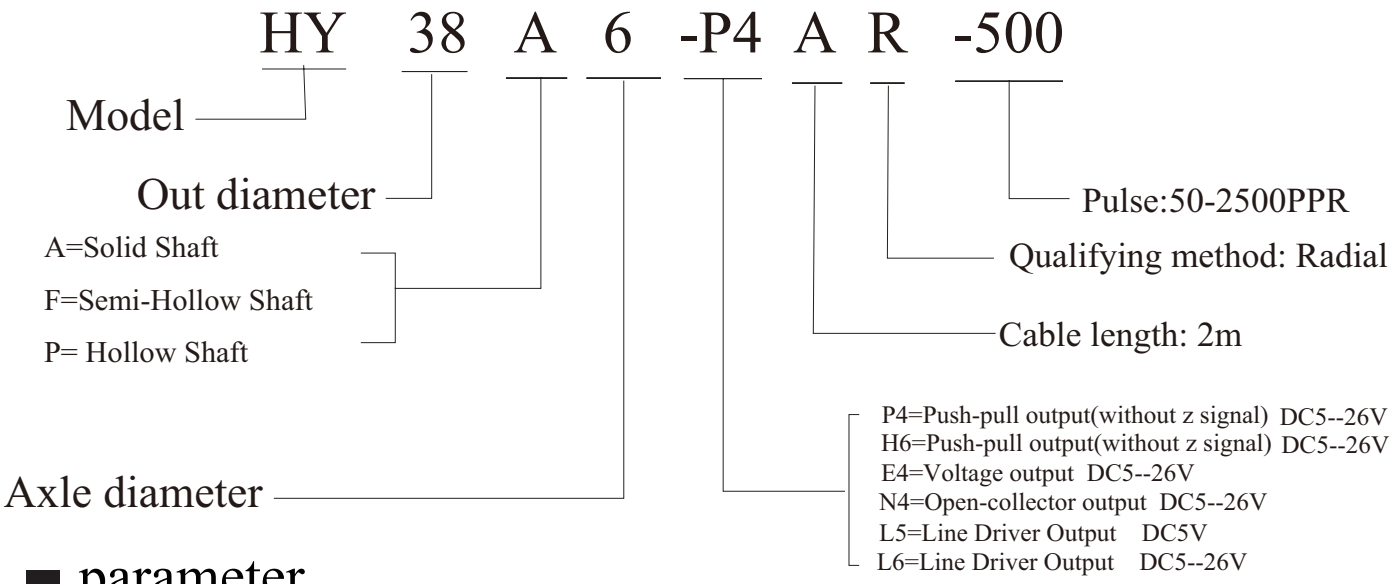
1. Rotary encoder is composed of precision components, you must be very careful to prevent itfrom falling in order to avoid damage function;
2. When you are using, please do not let water and oil droplets fall into the main body;
3. Please keep the power cut off when you are connecting, when power ON, if output wire connect to power,it can cause output circuit damage.
4. When fixed body, for wire connection, please sure that the strengh of tensile no more than 29.4 N;
5. Please do not load uptoo much, so as to avoid damage caused to the product. When using a chain, gear or belt as connection, let it through other bearings, and then connect couplings and encoder;
6. If the installation error is large(eccentricity, declination), there will be a large load add to the axle, then it would cause damage or decrease the using time of the product;
   When the coupling shaft inserted, please do not use a hammer or other percussion to prevent from increasing impact force;
8. When install or dismantle the coupling, please do not carry out unnecessary bending,compression and tensile.

Safty Notice

1. Please do not use the voltage more than rated voltage range, if the power that you used over than the rated, it would cause broken and burnt;
2. High-voltage and power lines inparallel connection will be incurred malfunction or damageddue to interaction, so please separate connection;
3. Surge Event would be happened when you are using power, please install Surge Absorber between the power;
4. When the power ON/OFF, it would easily cause false pulse, so please use our product after or before one second power ON/OFF;
5. Please pay more attention to the power polarity, do not connect the wire wrongly, in case that it would cause damage and burnt;
6. Be careful not to load or short-circuit, otherwise it would cause broken and burnt;
7. Please do not use our product under following conditions:Flammable, Explosive;
8. Please do not demolish, repair and transformation of this product;

HY 38 series encoder parameter

Model Illustration

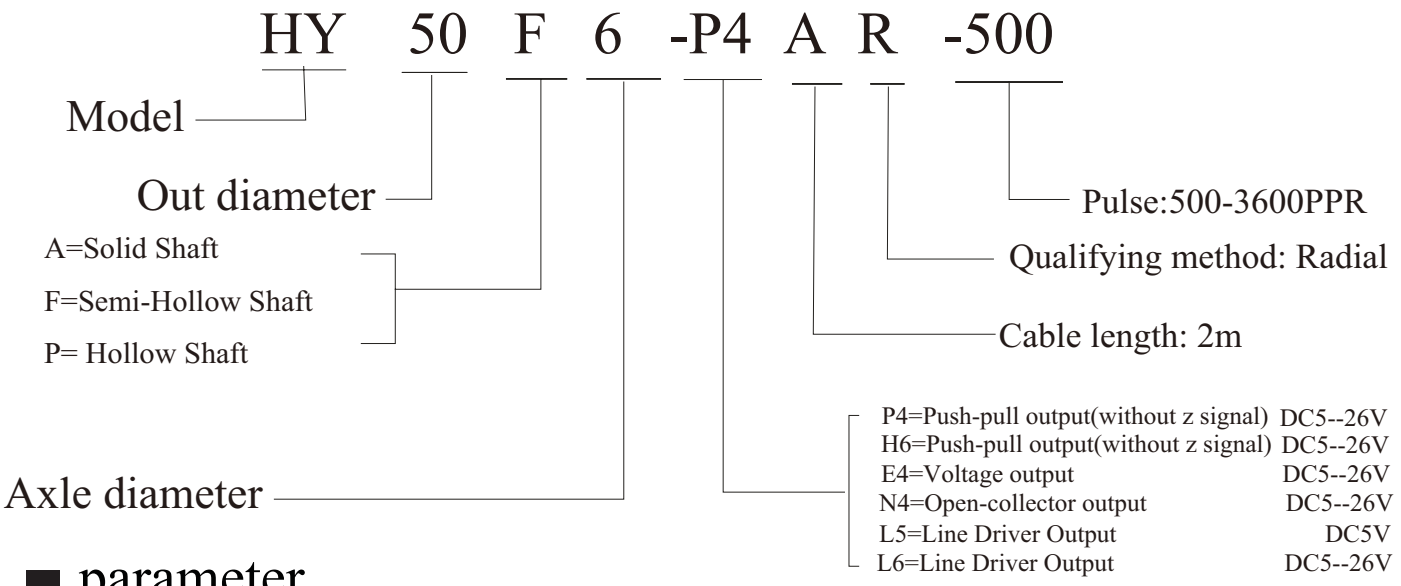


■ parameter

Series / parameter		HY38A		HY38F		HY38P	
Output Mode		P4/H6/E4/N4	L5	P4/H6/E4/N4	L5	P4/H6/E4/N4	L5
Power Voltage DC		5－26V	5V	5－26V	5V	5－26V	5V
Consume Current mA		≤60	≤150	≤60	≤150	≤60	≤150
Output Voltage (V)	VH	≥0.7Vcc		≥0.7Vcc		≥0.7Vcc	
	VL	≤0.5		≤0.5		≤0.5	
Rise Time (ns)		<1000		<1000		<1000	
Fall Time (ns)		<1000		<1000		<1000	
Response frequency (Khz)		0～100		0～100		0～100	
Max Speed (rpm)		5000		5000		5000	
Starting torque(25℃) (Nm)		$1.5x10^{-3}$		$2x10^{-3}$		$2x10^{-3}$	
Allowed angular (rad/s2)		10000		10000		10000	
Max Load (N)	Radial	20		9.8		9.8	
	Axial	10		9.8		9.8	
Rotary Inertia (kgm2)		$4x10^{-8}$		$4x10^{-7}$		$4x10^{-7}$	
Weight (KG)		0.1		0.12		0.12	
Ambient Temperature		－10～+70		－10～+60		－10～+60	
Storage Temperature(℃)		－20～+80		－20～+80		－20～+80	
Shock-Resistant (m/s2)		980 (X,Y,Z direction for each 3 times, with 6ms for each direction)		980 (X,Y,Z direction for each 3 times, with 6ms for each direction)		980 (X,Y,Z direction for each 3 times, with 6ms for each direction)	
Vibration resistance (m/s2)		49 (10--200Hz, X,Y,Z three direction, each one for 2h)		50 (10--200Hz, X,Y,Z three direction, each one for 2h)		50 (10--200Hz, X,Y,Z three direction, each one for 2h)	

HY 50 series encoder parameter

Model Illustration



■ parameter

parameter \ Series		HY50A		HY50F		HY50P	
Output Mode		P4/H6/E4/N4	L5	P4/H6/E4/N4	L5	P4/H6/E4/N4	L5
Power Voltage DC		5－26V	5V	5－26V	5V	5－26V	5V
Consume Current mA		≤80	≤150	≤80	≤150	≤80	≤150
Output Voltage (V)	VH	≥0.7Vcc		≥0.7Vcc		≥0.7Vcc	
	VL	≤0.5		≤0.5		≤0.5	
		＜1000		＜1000		＜1000	
Fall Time (ns)		＜1000		＜1000		＜1000	
Response frequency (Khz)		0～100		0～100		0～100	
Max Speed (rpm)		5000		5000		5000	
Starting torque(25℃) (Nm)		$1.5x10^{-3}$		$2x10^{-3}$		$2x10^{-3}$	
Allowed angular (rad/s2)		10000		10000		10000	
Max Load (N)	Radial	20		50		50	
	Axial	10		50		50	
Rotary Inertia (kgm2)		$4x10^{-8}$		$4x10^{-7}$		$4x10^{-7}$	
Weight (KG)		0.2		0.22		0.22	
Ambient Temperature		－10～+70		－10～+60		－10～+60	
Storage Temperature(℃)		－20～+80		-25---+85		-25---+85	
Shock-Resistant (m/s2)		490 (X,Y,Z direction for each 3 times, with 6ms for each direction)		490 (X,Y,Z direction for each 3 times, with 6ms for each direction)		490 (X,Y,Z direction for each 3 times, with 6ms for each direction)	
Vibration resistance (m/s2)		49 Variable-bit amplitude 0.75mm (10--200Hz, X,Y,Z three direction, each one for 2h)		49 Variable-bit amplitude 0.75mm (10--200Hz, X,Y,Z three direction, each one for 2h)		49 Variable-bit amplitude 0.75mm (10--200Hz, X,Y,Z three direction, each one for 2h)	

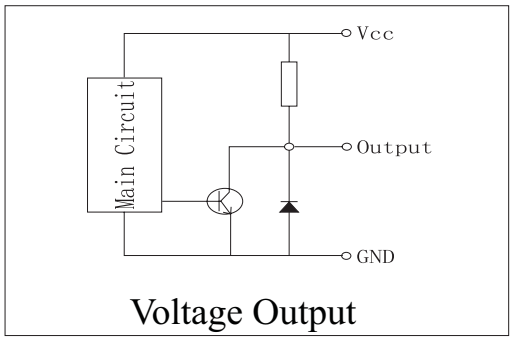
Connecting and Output

■ Connecting

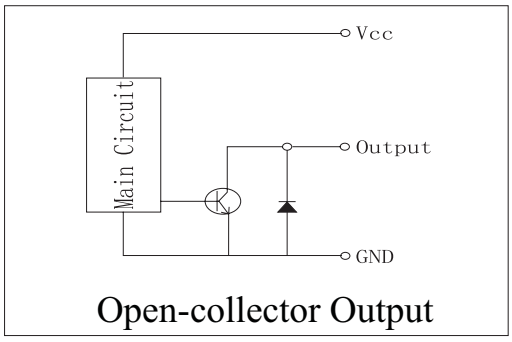
Wire Color	Red	Black	Green	Blue	White	Brown	Yellow	Orange	Shield
Open-collector Push-pull output Voltage Output	Vcc	0V	A	–	B	–	Z	–	G
Line driver	Vcc	0V	A	$\overline{A}$	B	$\overline{B}$	Z	$\overline{Z}$	G

■ Output CircuitOutput phase

E



C



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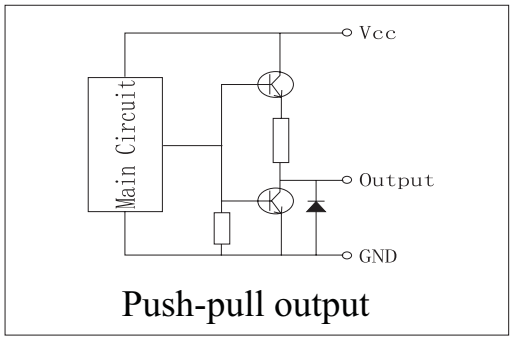

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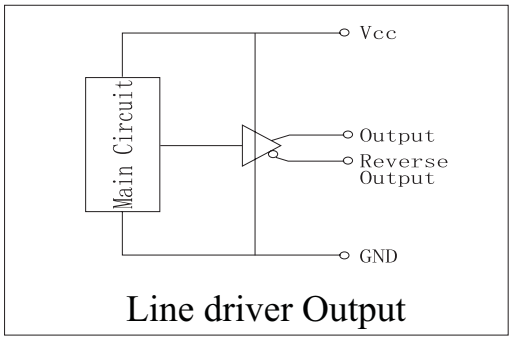
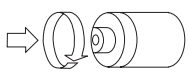
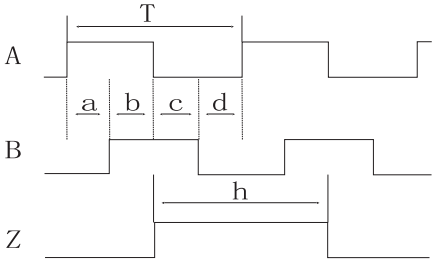


■ Output phase

CW → Bottom of the encoder axle

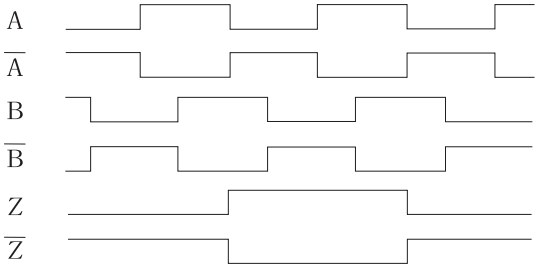


CW: Direction of Rotation

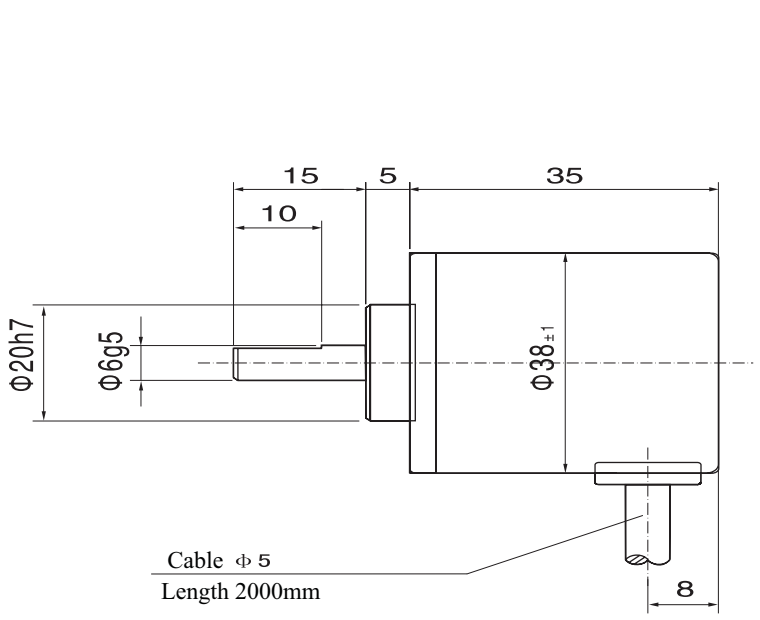


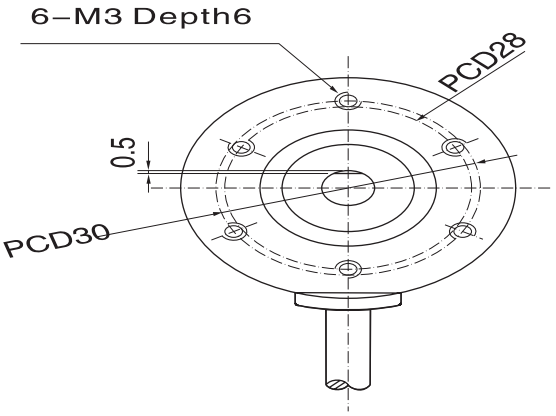
a. b. c. d=T/2±T/10

h=t±T/2

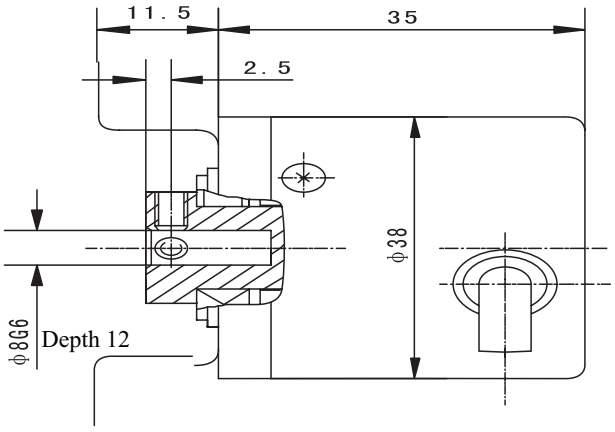


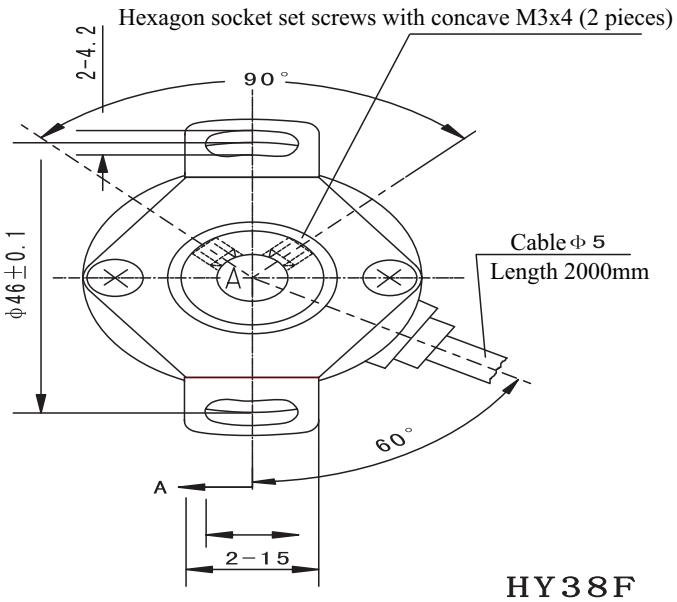
HY38 series Encoder dimension



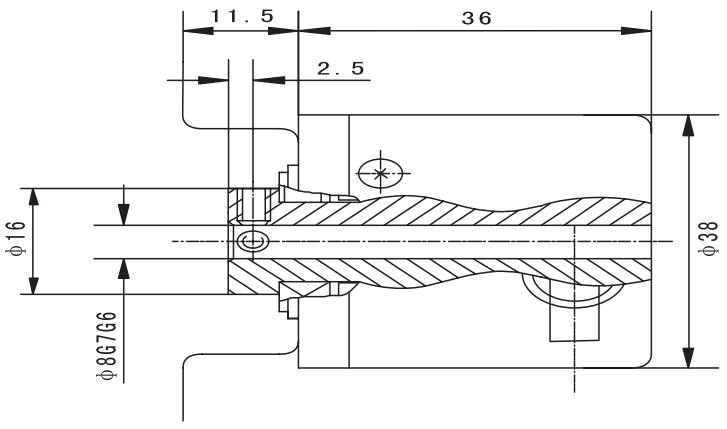


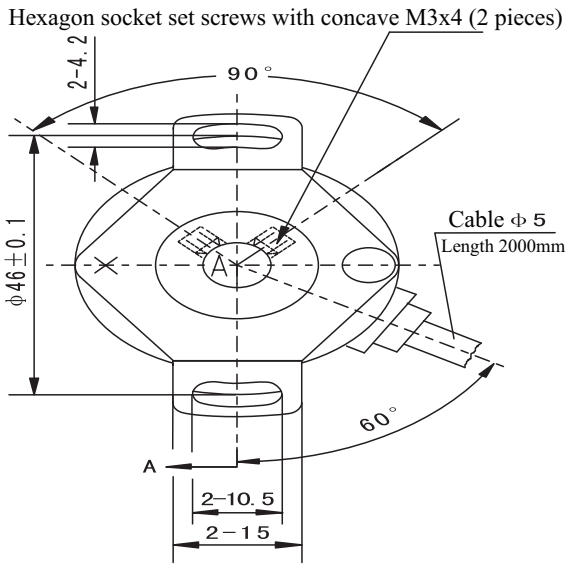
HY38A





HY38F





HY38P

HY50 Series Encoder Dimension