



# HS28A

Encoder modules



## • Application

- Stepping motor
- Automated equipment

## • Feature

- Low cost
- Small size
- Easy mounting

## • Resolution

360\*, 400, 500, 512, 625, 720\*, 800, 1000, 1024, 1250, 1440\*, 1600, 2000, 2048, 2500, 10000 P/R

\* => without  $\Phi 8$ mm hollow shaft.

## • Electrical Spec

Resolution		360 ~ 2500		3200 ~ 10000
Output circuit		Z $\square$ VT, Z $\square$ OT	Z $\square$ LT	Z $\square$ LT
Supply voltage		4.5 ~ 5.5V	4.5 ~ 5.5V	4.5 ~ 5.5V
Supply current (Max.)		80mA	100mA	110mA
Signal		A, B, Z	A+, A-, B+, B-, Z+, Z-	A+, A-, B+, B-, Z+, Z-
Rise/Fall time (Max.)		250ns	50ns	10ns
Frequency		300kHz	500kHz	1.5MHz
Output voltage	"H"	2.4V Min.	2.4V Min.	2.4V Min.
	"L"	0.4V Max.	0.4V Max.	0.4V Max.
Max. output current		10mA	20mA	20mA

## • Mechanical Spec

Hollow diameter	$\Phi$ 4, 5, 6, 6.35, 8 mm
Housing material	PC
Max. R.P.M.	6000 rpm*
Net weight	30g

\*R.P.M = Frequency \* 60 / Resolution

## • Environmental Spec

Operating temp.	-20 ~ +85°C
Storage temp.	-20 ~ +85°C
Operating humidity	RH 85% Max. non-collecting
Shock	490 m/s <sup>2</sup> , 3Dx2 times
Vibration	1.2mm, 10~55KHz, 3Dx30min.
Protection	IP 40



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## • Connection

Signal : A, B, Z (UL2464、AWG26、5pin + Shield)

Molex : 532610671 (Compatible headers)

Red	Black	White	Green	Yellow	Blue
Vcc	Gnd	A	B	Z	Shield

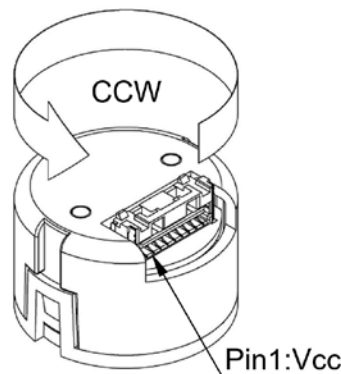
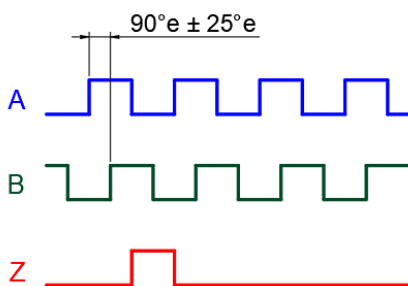
Signal : A+, A-, B+,B-,Z+,Z- (UL2517、AWG28、8pin + Shield)

Molex : 5023860970 (Compatible headers)

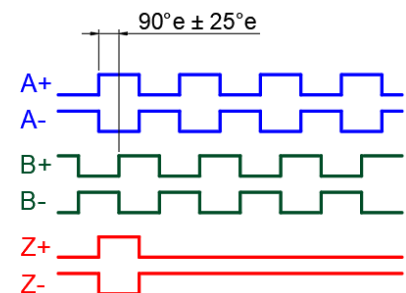
Red	Black	White	White/Black	Green	Green/Black	Yellow	Yellow/Black	Blue
Vcc	Gnd	A+	A-	B+	B-	Z+	Z-	Shield

## • Output Waveform

Shaft rotation CCW  
A leads B

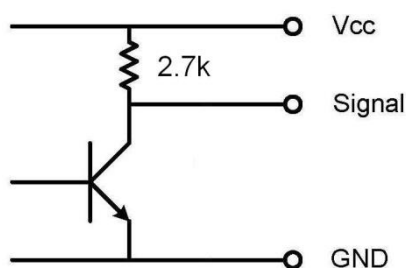


Shaft rotation CCW  
A leads B

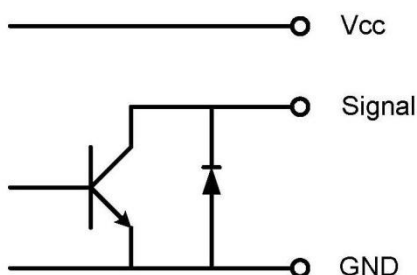


## • Output Circuit

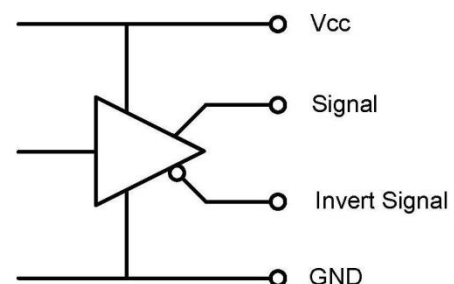
### Voltage output



### Open collector



### Line driver(AM26C31)





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## Ordering Information

HS28A - XXXX - X X X X - X - NXXX

Resolution
360 ~ 10000

Type No.
001, 002, 003 ...

Phase
Z
A, B, Z

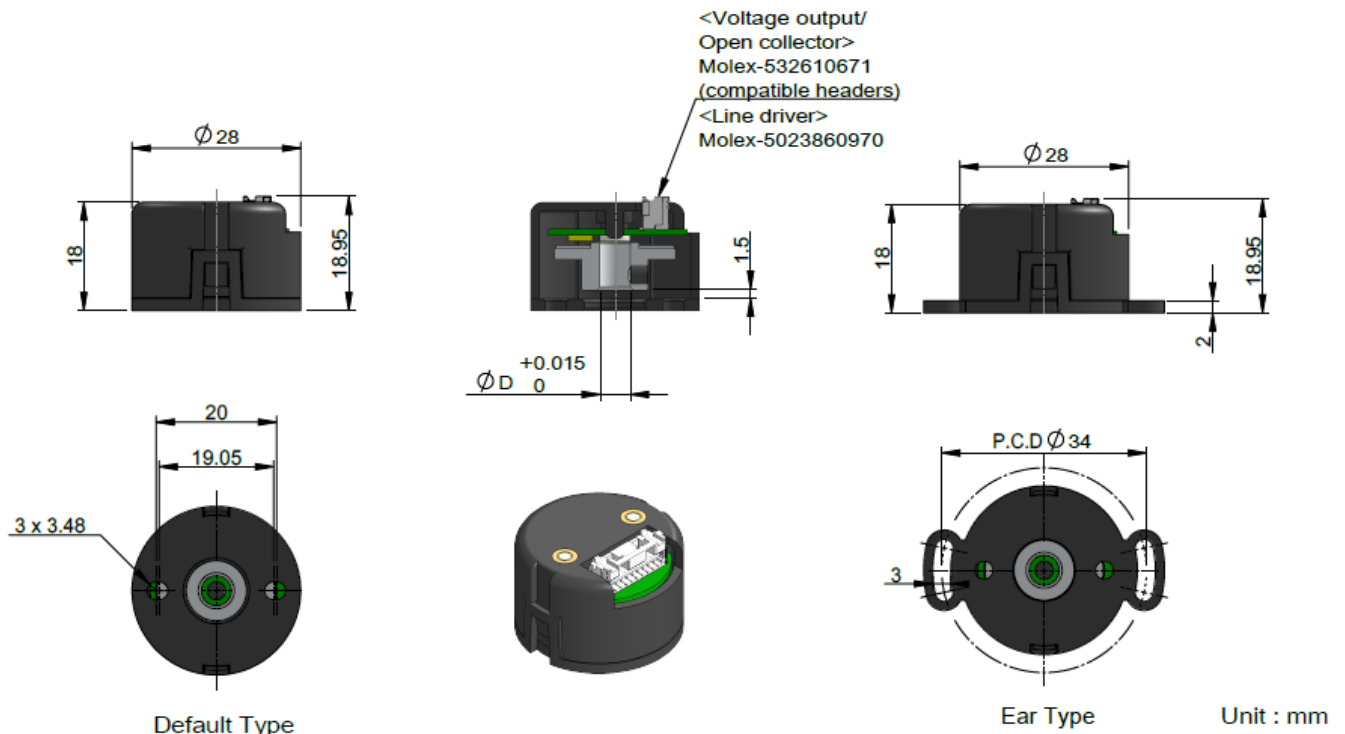
Base
D
Default
E
Ears

Hollow
4
4mm
5
5mm
6
6mm
6.35
6.35mm
8
8mm

Supply voltage
T
TTL (5V)

Output circuit
V
Voltage output(NPN)
O
Open collector(NPN)
L
Line driver

## • Mechanical Drawing





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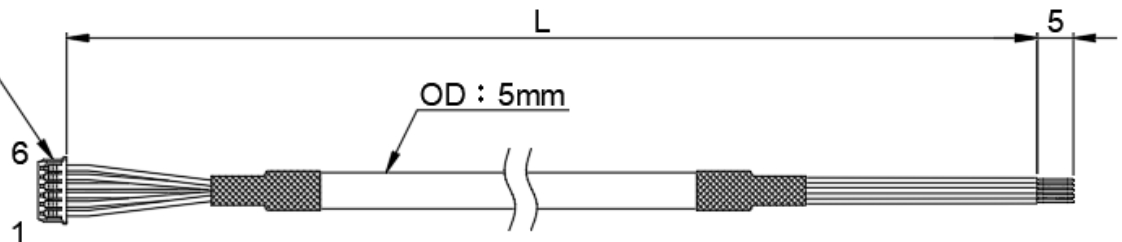
## • Cable Introduction

### < Voltage output / Open collector >

Molex  
510210600  
500798000

Color :

1. Red
2. Black
3. White
4. Green
5. Yellow
6. Blue



<Wire spec>

AWG26 、UL2464 、Braid shielding

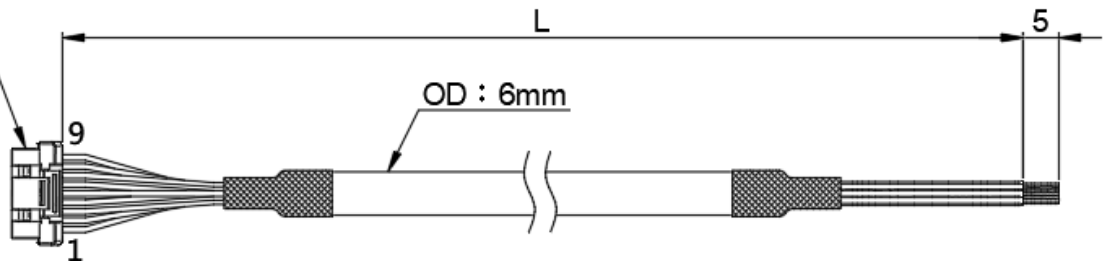
**Cable length : 500、1000、2000mm**

### < Line driver >

Molex  
5023800900  
5023810000

Color :

1. Red
2. Black
3. White
4. White/Black
5. Green
6. Green/Black
7. Yellow
8. Yellow/Black
9. Blue



<Wire spec>

AWG28 、UL2517 、Braid shielding

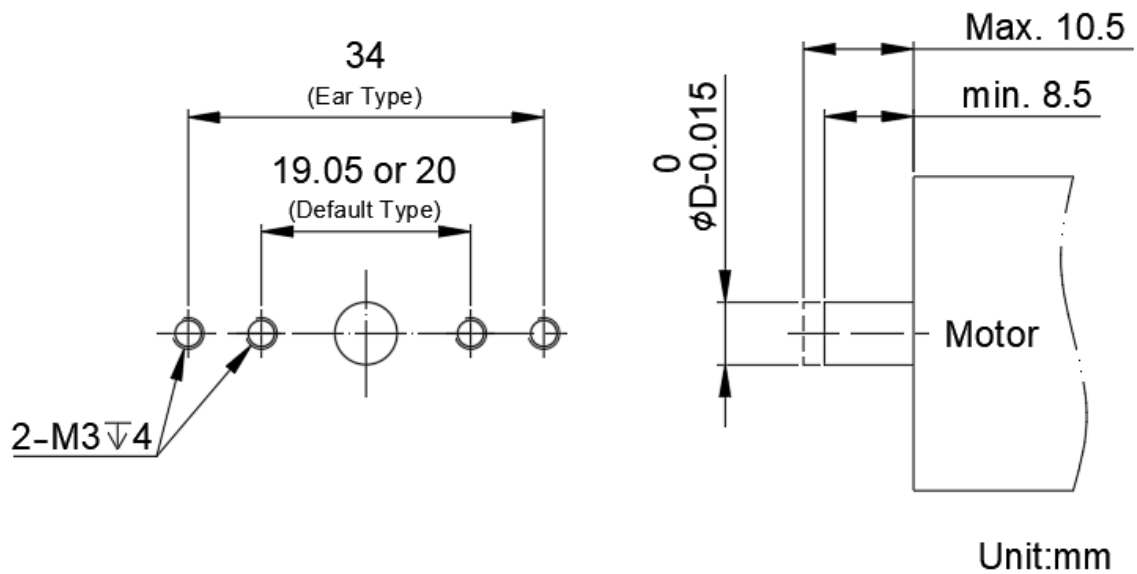
**Cable length : 500、1000、2000mm**



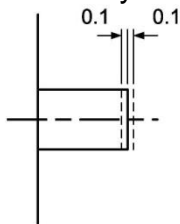
# HS28A

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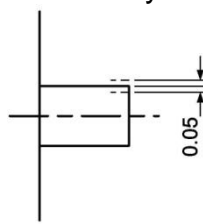
## • Setting Dimension



Axial assembly tolerance



Radial assembly tolerance



Concentric angle tolerance

