## KJ50 parallel absolute

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## 1. Absolute Type-Parallel output (Hollow shaft,Thru-hole \& Blind-hole)

1.1 Introduction

KJ50 is an economic universal hollow shaft design, it is compact,sturdy,high safety, and commonly used in industrial automations
1.2 Feature:

- Encoder external diameter $\varnothing 51 \mathrm{~mm}$, thickness 39 mm , diameter of shaft up to $\varnothing 15 \mathrm{~mm}$;
- Adopt non-contact photoelectric principle;
- Multiple electrical interfaces available;
- Gray code parallel output absolute position information;
- Resolution per turn up to 12Bits(4096)
1.3 Application:

Textile, packaging, motor, elevator, CNC and other automation control fields.
1.4 Connection:

- Radial cable (STD length 1000 mm )
- Radial socket (M23*1 16P Male-connector)
- Radial cable with plug (STD length 1000 mm ,Plug M16F-16K)
1.5 Protection: IP50 \& IP65
1.6 Weight:

About 310g


KJ50-T


KJ50-TE

## 2. Model Selection Guide



## 3. Resolution Output Table



## 4. Output Mode



## 5. Electrical Characteristics

| Parameter Interface <br> (Parallel) <br> Item  |  |  | OC(NPN) |  | OC(PNP) |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Supply voltage |  |  | DC5V $\pm 5 \%$; DC8V-30V $\pm 5 \%$ |  |  |
| Allowable ripple |  |  | $\leq 3 \% \mathrm{rms}$ |  |  |
| Consumption current |  |  | 100mA Max |  |  |
| Output code |  |  | gray code |  |  |
| Precision |  |  | [360/(resolutionx4)] ${ }^{\text {² }}$ |  |  |
| Top response frequency |  |  | 100kHz Max |  |  |
| Output capascity | Output | Input | $\leq 30 \mathrm{~mA}$ |  |  |
|  | current | Output | - |  |  |
|  | Output | "H" | - |  |  |
|  | voltage | "L" | $\leq 0.4 \mathrm{~V}$ |  |  |
|  | Load vo | Itage | SDC30V |  |  |
| Rise \& Fall time |  |  | Less than 2us (Load resistance 1Kת, cable length: 2 m ) |  |  |
| Output level |  |  | Low level available | High level available |  |
| Insulation strength |  |  | AC500V 60s |  |  |
| Insulation resistance |  |  | $10 \mathrm{M} \Omega$ |  |  |
| GND |  |  | not connect to encoder |  |  |

## 6. Mechanical Characteristics

| Shaft | $\varnothing 15 \mathrm{~mm}$ (blind hole); $\varnothing 14 \mathrm{~mm} ; \varnothing 12 \mathrm{~mm} ; \varnothing 10 \mathrm{~mm} ; \varnothing 8 \mathrm{~mm}$ (stainless steel) |
| :--- | :--- |
| Starting torque | Less than $9.8 \times 10^{-3} \mathrm{~N} \cdot \mathrm{~m}$ |
| Inertia moment | Less than $6.5 \times 10^{-6} \mathrm{~kg} \cdot \mathrm{~m}^{2}$ |
| Shaft load | Radial $40 \mathrm{~N} ;$ Axial 30 N |
| Slew speed | $\leq 4000 \mathrm{rpm} ; \quad$ IP65 $\leq 3000 \mathrm{rpm} ; \quad$ IP65 $\leq 2000 \mathrm{rpm}$ (Through hole) |
| Bearing Life | $1.5 \times 10^{9}$ revs at rated load(10000hrs at 2500 RPM ) |
| Shell | Die cast aluminum |
| Weight | about 310 g (With package) |

## 7. Environmental Specifications

| Environmental temperature | Operating: $-20 \sim+85^{\circ} \mathrm{C}$ (repeatable winding cable: $-10^{\circ} \mathrm{C}$ ); storage: $-25 \sim+90^{\circ} \mathrm{C}$ |
| :--- | :--- |
| Environmental humidity | Operating and storage: $35 \sim 85 \% \mathrm{RH}$ (noncondensing) |
| Vibration(endure) | Amplitude $0.75 \mathrm{~mm}, 10 \sim 50 \mathrm{~Hz}, 1 \mathrm{~h}$ for $\mathrm{X}, \mathrm{Y}, \mathrm{Z}$ direction individually |
| Shock(endure) | $49 \mathrm{~m} / \mathrm{s}^{2}$, three times for $\mathrm{X}, \mathrm{Y}, \mathrm{Z}$ direction individually |
| Protection | IP50 \& IP65 |

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## 8. Wiring table

| Socket Pin No. \& Color | Resolution4096 | Resolution2048 | $\begin{array}{\|c\|} \text { Resolution1024 } \\ (720) \end{array}$ | $\begin{gathered} \text { Resolution512 } \\ (360) \end{gathered}$ | $\begin{aligned} & \text { Resolution256 } \\ & (180) \end{aligned}$ | Resolution128 | Resolution64 | Resolution32 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{gathered} \text { 15=R=pink } \\ \text { /black } \end{gathered}$ | bit1 $\left(2^{0}\right)$ | Not connect | $\square$ | $\sim$ | $\square$ | $\square$ | $\square$ | $\square$ |
| $\begin{gathered} 14=\mathrm{P}=\text { gray } \\ \text { /black } \end{gathered}$ | bit2( ${ }^{1}$ ) | bit1 $\left(2^{0}\right)$ | Not connect | $\square$ | $\square$ | $\square$ | $\square$ | $\square$ |
| $\begin{gathered} 13=\mathrm{O}=\text { blue } \\ \text { /black } \end{gathered}$ | bit3( $2^{2}$ ) | bit2( ${ }^{1}$ ) | bit1 $\left(2^{0}\right)$ | Not connect | $\square$ | $\sim$ | $\square$ | $\square$ |
| $\begin{array}{r} 12=\mathrm{N}=\text { yellow } \\ \text { /black } \end{array}$ | bit4( $2^{3}$ ) | bit3( $2^{2}$ ) | bit2( $2^{1}$ ) | bit1 $\left(2^{0}\right)$ | Not connect | - | - | $\square$ |
| $\begin{array}{r} 11=\mathrm{M}=\text { green } \\ \text { /black } \end{array}$ | bit5( $2^{4}$ ) | bit4( $2^{3}$ ) | bit3( $2^{2}$ ) | bit2( ${ }^{1}$ ) | bit1 $\left(2^{0}\right)$ | Not connect | $\square$ | $\square$ |
| $\text { 10=L=white } \begin{gathered} \text { /black } \\ \text { /bin } \end{gathered}$ | bit6( $2^{5}$ ) | bit5( $2^{4}$ ) | bit4( $2^{3}$ ) | bit3( $2^{2}$ ) | bit2( ${ }^{1}$ ) | $\operatorname{bit} 1\left(2^{0}\right)$ | Not connect | $\square$ |
| 9=K=pink | $\operatorname{bit} 7\left(2^{6}\right)$ | bit6 $\left(2^{5}\right)$ | bit5( $2^{4}$ ) | bit4( $2^{3}$ ) | bit3( $2^{2}$ ) | bit2( ${ }^{1}$ ) | bit1(2) | Not connect |
| 8=1=gray | bit8( $2^{7}$ ) | $\operatorname{bit} 7\left(2^{6}\right)$ | bit6( $2^{5}$ ) | bit5(2 ${ }^{4}$ ) | bit4( $2^{3}$ ) | bit3(2 ${ }^{2}$ ) | bit2( ${ }^{1}$ ) | bit1 $\left(2^{0}\right)$ |
| 7=H=blue | $\operatorname{bit} 9\left(2^{8}\right)$ | bit8(2 ${ }^{7}$ ) | $\operatorname{bit} 7\left(2^{6}\right)$ | bit6(25) | bit5(24) | bit4(2 ${ }^{3}$ ) | bit3(2 ${ }^{2}$ ) | bit2(2 ${ }^{1}$ ) |
| 6=G=yellow | bit10( $2^{9}$ ) | bit9 $\left(2^{8}\right)$ | bit8( $2^{7}$ ) | $\operatorname{bit7}\left(2^{6}\right)$ | bit6( $2^{5}$ ) | bit5( $2^{4}$ ) | bit4(2 ${ }^{3}$ ) | bit3( $2^{2}$ ) |
| 5=F=green | bit11( ${ }^{10}$ ) | bit10(29) | $\operatorname{bit} 9\left(2^{8}\right)$ | bit8(2 ${ }^{7}$ ) | $\operatorname{bit} 7\left(2^{6}\right)$ | bit6( $2^{5}$ ) | bit5( $2^{4}$ ) | bit4( $2^{3}$ ) |
| 4=E=white | bit12(2 ${ }^{11}$ ) | bit11(2 ${ }^{10}$ ) | bit10( $2^{9}$ ) | $\operatorname{bit} 9\left(2^{8}\right)$ | bit8(2 ${ }^{7}$ ) | $\operatorname{bit} 7\left(2^{6}\right)$ | bit6( $2^{5}$ ) | bit5(24) |
| $3=\mathrm{D}=$ brown | W (outside control direction: non-contact is CCW; connect to oV is CW) |  |  |  |  |  |  |  |
| 2=C=black | OV |  |  |  |  |  |  |  |
| 1=B=red | DC5V \& DC8-30V |  |  |  |  |  |  |  |
| $0=A=$ shielding | GND |  |  |  |  |  |  |  |

Cable connection


Radial socket connection


M23*1 16P
Male-connector pin Assignment

Radial cable with plug


M16F-16K Male-head pin Assignment

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## 9. Basic Dimensions

9.1 Dimensions

| B(Blind -Shaft) | $\begin{aligned} & \text { Q(Thru } \\ & \text {-shaft) } \end{aligned}$ | D |
| :---: | :---: | :---: |
| $\varnothing 8^{\mathrm{G7}}\binom{+0.020}{+0.005}$ |  | Ø24 |
| $\varnothing 10^{\mathrm{G7}}\binom{+0.024}{+0.006}$ |  | $\varnothing 24$ |
| $\varnothing 12^{\mathrm{G7}}\binom{+0.024}{+0.006}$ |  | $\varnothing 26$ |
| $\varnothing 14{ }^{\mathrm{G7}}\binom{+0.024}{+0.006}$ |  | $\varnothing 28$ |
| Ø15 ${ }^{\mathrm{G7}}\binom{+0.024}{+0.006}$ |  | $\varnothing 28$ |


9.2 Assembling requirement

| d |
| :---: |
| $\varnothing 8{ }_{96}\left(\begin{array}{c}-0.0014\end{array}\right)$ |
| $\varnothing 10{ }_{g 6}\left(-{ }_{-0.014}^{-0.005}\right)$ |
| $\varnothing 12{ }_{\mathrm{g} 6}\left(-{ }_{-0.017}^{-0.006}\right)$ |
| $\varnothing 14{ }_{\mathrm{g} 6}\left(-{ }_{-0.017}^{-0.006}\right)$ |
| $\varnothing 15{ }_{g 6}\left(\begin{array}{c}-0.017\end{array}\right)$ |

## Mounting screws

Inner hexagon bolt
+flat washer
Specification: M4*8 Material: stainless steel
Quantity: 1

Unit: mm


[^0]
## 10. Accessories(Spring plate option)




[^0]:    = Shaft rotation direction of the signal output
    R. 1 = Radial cable (Standard length 1000mm)
    R. 2 = Radial socket (M23x1 16P Male-connector)
    R. $3=$ Radial cable with plug (Standard length 1000 mm , plug M16F-16K)

    50G55 = Standard spring plate(pls refer to Page 7 for more options)

