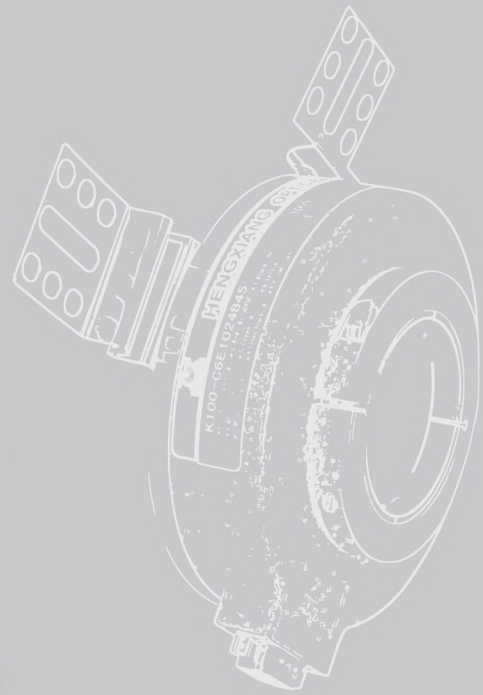
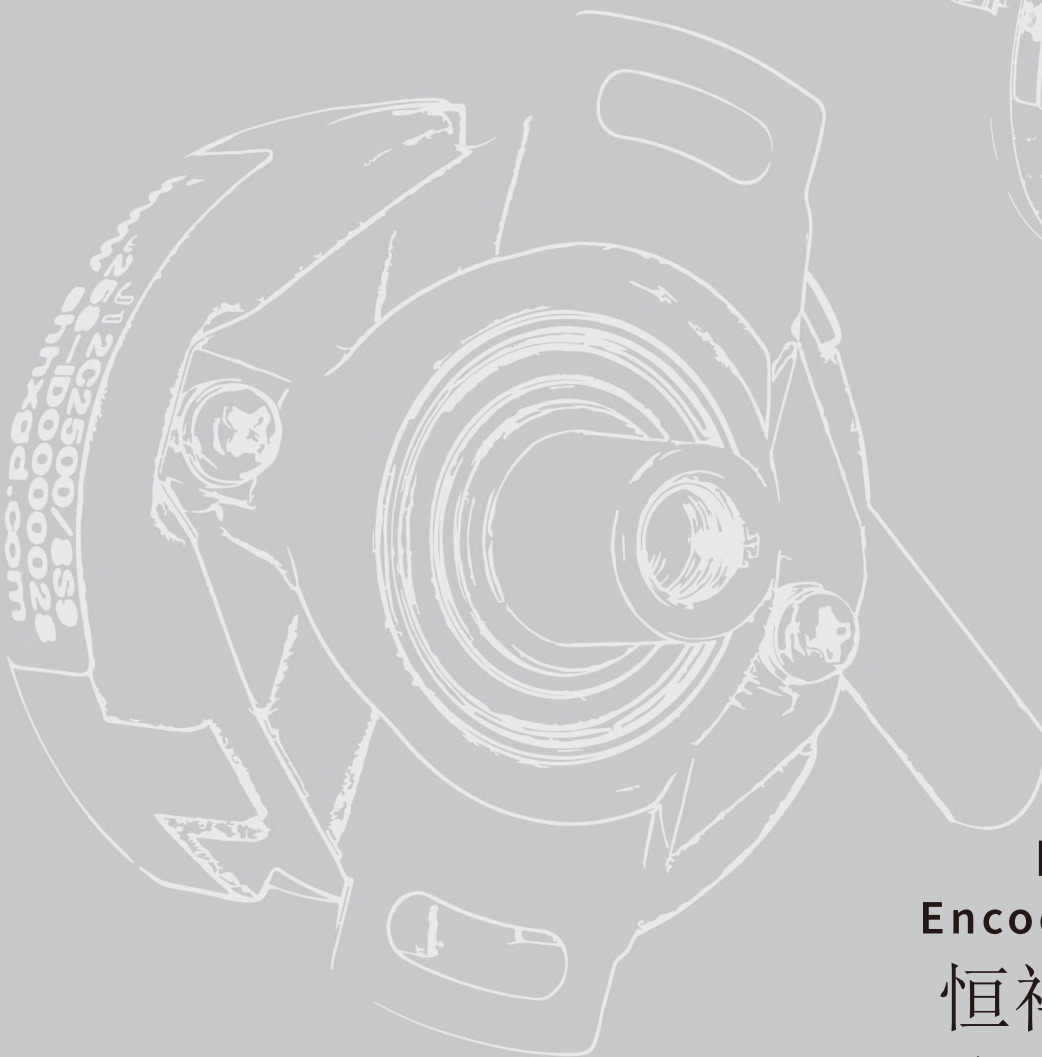
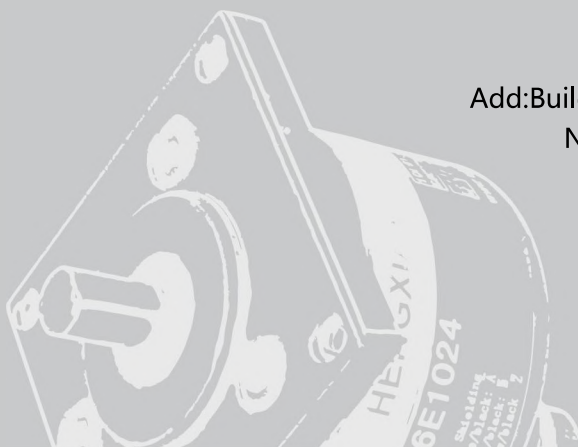




HENGXIANG



HENGXIANG
Encoder Manual
恒祥编码器
产品手册



Add: Building 7, Lane 115 (Chuangyi International Industrial Park)
No. 1276 Nanle Road, Song Jiang, Shanghai, China, 201600
Shanghai Hengxiang Optical Electronics Co., Ltd.
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E-mail: fang@shhxgd.com

1

Absolute Encoder

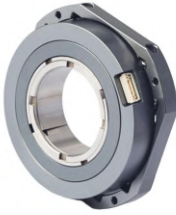


- ▲ HENGXIANG provides single and multi-turn absolute encoders
- ▲ Shaft types - through shaft, blind shaft, solid shaft available
- ▲ Shaft diameter $\phi 6\text{mm}$ – $\phi 40\text{mm}$
- ▲ Single-turn up to 32 bits, multi-turn up to 24 bits
- ▲ Supports a wide range of standard communication protocols such as Biss-C/SSI/RS485/Parallel/Gray code/Binary
- ▲ Highest protection grade is IP65

Model Selection

	KJ38	Single-Turn Parallel Gray Code Absolute-Hollow Shaft Outer Dia: $\phi 38\text{mm}$; Thickness: 38mm Shaft: $\phi 5\text{mm}$; $\phi 6\text{mm}$; $\phi 8\text{mm}$ (Blind-hole) Steps: 5bit (32) -11bit (2048) Circuit:NPN;PNP Speed: $\leq 3000\text{ rpm}$ Working Temperature: $-20\sim +85^{\circ}\text{C}$ Grade:IP50; IP65 Weight: 140g		SJ38	Single-Turn Parallel Gray Code Absolute-Solid Shaft Outer Dia: $\phi 38\text{mm}$; Thickness: 28mm Shaft: $\phi 6\text{mm}$ Steps: 5bit (32) -11bit (2048) Circuit: NPN;PNP Speed: $\leq 4000\text{ rpm}$ Working Temperature: $-20\sim +85^{\circ}\text{C}$ Grade:IP50;IP65 Weight: 130g
	KJ50	Single-Turn Parallel Gray Code Absolute-Hollow Shaft Outer Dia: $\phi 51\text{mm}$; Thickness: 39mm Shaft: $\phi 8\text{mm}$ – $\phi 15\text{mm}$ (Blind&Thru-hole) Steps: 5bit (32) -12bit (4096) Circuit: NPN;PNP Speed: $\leq 3000\text{ rpm}$ Working Temperature: $-20\sim +85^{\circ}\text{C}$ Grade:IP50; IP65 Weight: 310g		SJ50	Single-Turn Parallel Gray Code Absolute-Solid Shaft Outer Dia: $\phi 51\text{mm}$; Thickness: 29mm Shaft: $\phi 8\text{mm}$; $\phi 10\text{mm}$ Steps: 5bit (32) -12bit (4096) Circuit: NPN;PNP Speed: $\leq 4000\text{ rpm}$ Working Temperature: $-20\sim +85^{\circ}\text{C}$ Grade:IP50;IP65 Weight: 300g
	KJ58	Single-Turn Parallel Gray Code Absolute-Hollow Shaft Outer Dia: $\phi 58\text{mm}$; Thickness: 25mm Shaft: $\phi 14\text{mm}$ – $\phi 25\text{mm}$ (Thru-hole) Steps: 5bit (32) -12bit (4096) Circuit: NPN;PNP Speed: $\leq 3000\text{ rpm}$ Working Temperature: $-20\sim +85^{\circ}\text{C}$ Grade:IP50; IP65 Weight: 180g		SJ58	Single-Turn Parallel Gray Code Absolute-Solid Shaft Outer Dia: $\phi 58\text{mm}$; Thickness: $36\text{--}40\text{mm}$ Shaft: $\phi 6\text{mm}$; $\phi 8\text{mm}$; $\phi 10\text{mm}$ Steps: 5bit (32) -12bit (4096) Circuit: NPN;PNP Speed: $\leq 4000\text{ rpm}$ Working Temperature: $-40\sim +95^{\circ}\text{C}$ Grade:IP50;IP65 Weight: 420g
	SM39	Single-turn & Multi-turn Absolute-Solid Shaft Outer Dia: $\phi 39\text{mm}$; Thickness: 31.5mm Shaft: $\phi 6\text{mm}$; $\phi 8\text{mm}$; $\phi 10\text{mm}$ Communication: BISS-C;SSI Output: Binary/Gray code Pulse: 17-24bits (Max 32 bits) Interface: RS-485 Accuracy: $\pm 80''$ Speed: $\leq 6000\text{ rpm}$ Working Temperature: $-40\sim +95^{\circ}\text{C}$ Grade:IP50;IP65 Weight: 130g		SM58	Single-turn & Multi-turn Absolute Solid Shaft Outer Dia: $\phi 39\text{mm}$; Thickness: 31.5mm Shaft: $\phi 6\text{mm}$; $\phi 8\text{mm}$; $\phi 10\text{mm}$ Communication: BISS-C;SSI Output: Binary/Gray code Pulse: 17-24bits (Max 32 bits) Interface: RS-485 Accuracy: $\pm 80''$ Speed: $\leq 6000\text{ rpm}$ Working Temperature: $-40\sim +95^{\circ}\text{C}$ Grade:IP50&IP65 Weight: 420g

Absolute Encoder

	MP35	Single-turn Absolute Hollow Shaft Outer Dia:φ35mm; Thickness:15mm Shaft: φ6mm;φ8mm (Thru-hole) Communication: BISS-C;SSI Output:Binary/Gray code Pulse: 17-24bits (Max 32 bits) Interface: RS-485 Accuracy: ±80" Speed:≤6000 rpm Working Temperature: -20~+95°C Grade:IP50 Weight: 70g		MPN35	Single-turn Absolute Hollow Shaft Outer Dia:φ35mm;Thickness:16.2mm Shaft: φ6mm;φ8mm (Thru-hole) Communication: BISS-C;SSI Output:Binary/Gray code Pulse: 17-24bits (Max 32 bits) Interface: RS-485 Accuracy: ±80" Speed:≤6000 rpm Working Temperature: -20~+95°C Grade:IP50 Weight: 70g
	KM39	Single-turn & Multi-turn Absolute Hollow Shaft Outer Dia:φ39mm; Thickness:41mm Shaft: φ6mm;φ8mm;φ10mm (Blind-hole) Communication: BISS-C;SSI Output: Binary/Gray code Pulse: 17-24bits (Max 32 bits) Interface: RS-485 Accuracy: ±80" Speed:≤6000 rpm Working Temperature: -40~+95°C Grade:IP50;IP65 Weight: 150g		KM42	Single-turn & Multi-turn Absolute-Hollow Shaft Outer Dia:φ42mm; Thickness:33mm Shaft: φ6mm;φ8mm;φ10mm (Thru-hole) Communication: BISS-C;SSI Output: Binary/Gray code Pulse: 17-24bits (Max 32 bits) Interface: RS-485 Accuracy: ±80" Speed:≤6000 rpm Working Temperature: -40~+95°C Grade:IP50&IP65 Weight: 150g
	MP55	Single-turn & Multi-turn Absolute-Hollow Shaft Outer Dia:φ55mm; Thickness:15mm Shaft: φ14mm-φ24mm (Thru-hole) Communication: BISS-C;SSI Output:Binary/Gray code Pulse: 17-24bits (Max 32 bits) Interface: RS-485 Speed:≤3000 rpm Working Temperature: -20~+95°C Grade:IP50 Weight: 100g		MPN55	Single-turn & Multi-turn Absolute-Hollow Shaft Outer Dia:φ55mm;Thickness:15mm Shaft: φ14mm-φ24mm (Thru-hole) Communication: BISS-C;SSI Output:Binary/Gray code Steps: 17Bit-24Bits(Max 32 bits) Interface: RS-485 Accuracy: ±80" Speed:≤6000 rpm Working Temperature: -20~+95°C Grade:IP50 Weight: 150g
	MPB55	Single-turn & Multi-turn Absolute-Hollow Shaft Outer Dia:φ55mm; Thickness:16mm Shaft: φ14mm-φ24mm (Thru-hole) Communication: BISS-C;SSI Output: Binary/Gray code Pulse: 17-24bits (Max 32 bits) Interface: RS-485 Accuracy: ±80" Speed:≤4000 rpm Working Temperature: -20~+95°C Grade:IP50 Weight: 150g		KM55	Single-turn & Multi-turn Absolute-Hollow Shaft Outer Dia:φ55mm; Thickness:22mm Shaft: φ14mm-φ25mm (Thru-hole) Communication: BISS-C;SSI Output: Binary/Gray code Pulse: 17-24bits (Max 32 bits) Interface: RS-485 Accuracy: ±80" Speed:≤6000 rpm Working Temperature: -20~+95°C Grade:IP50 Weight: 150g
	KM58	Single-turn & Multi-turn Absolute-Hollow Shaft Outer Dia:φ58mm; Thickness:30mm Shaft: φ14mm-φ25mm (Thru-hole) Communication: BISS-C;SSI Output: Binary/Gray code Pulse: 17-24bits (Max 32 bits) Interface: RS-485 Accuracy: ±80" Speed:≤3000 rpm Working Temperature: -40~+95°C Grade:IP50;IP65 Weight: 180g		KM60	Single-turn & Multi-turn Absolute-Hollow Shaft Outer Dia:φ60mm; Thickness:39.8mm Shaft: φ6mm-φ15mm (Thru-hole) Communication: BISS-C;SSI Output: Binary/Gray code Pulse: 17-24bits (Max 32 bits) Interface: RS-485 Accuracy: ±80" Speed:≤6000 rpm Working Temperature: -40~+95°C Grade:IP50;IP65 Weight: 350g
	MPN80	Single-turn & Multi-turn Absolute-Hollow Shaft Outer Dia:φ80mm;Thickness:22mm Shaft: φ30mm-φ40mm (Thru-hole) Communication: BISS-C;SSI Output:Binary/Gray code Steps: 17Bit-24Bits(Max 32 bits) Interface: RS-485 Accuracy: ±80" Speed:≤3000 rpm Working Temperature: -20~+95°C Grade:IP50 Weight: 360g			

2

Sincos Encoder



- ▲ Sine and Cosine Encoders are sensors for the measurement of position changes, which can measure both distance and direction,widely used as feedback systems
- ▲ HENGXIANG provides provide solid shaft and hollow shaft types
- ▲ Shaft ranges from ϕ 6mm- ϕ 30mm
- ▲ Pulse:1024ppr-2048ppr
- ▲ Highest protection grade is IP65

Model Selection

	KS42	Sin/Cos Optcal Encoder-Hollow Shaft Outer Dia: ϕ 42mm; Thickness:33mm Shaft: ϕ 6mm- ϕ 10mm (Thru-hole) Pulse: 1024ppr Circuit: Sin/Cos Speed: $\leq$ 6000 rpm Working Temperature: -40~+95°C Grade:IP50&IP65 Weight: 150g		TS42	Sin/Cos Optcal Encoder-Taper Shaft Outer Dia: ϕ 42mm; Thickness:29.8mm Shaft: ϕ 6.5mm Pulse: 1024ppr Circuit: Sin/Cos Speed: $\leq$ 6000 rpm Working Temperature: -40~+95°C Grade:IP50&IP65 Weight: 150g
	KS76	Sin/Cos Optcal Encoder-Hollow Shaft Outer Dia: ϕ 76.5mm; Thickness:37mm Shaft: ϕ 18mm- ϕ 30mm (Thru-hole) Pulse: 2048ppr Circuit: Sin/Cos Speed: $\leq$ 3000 rpm Working Temperature: -20~+85°C Grade:IP50&IP65 Weight: 360g		SS58	Sin/Cos Optcal Encoder-Solid shaft Outer Dia: ϕ 58mm; Thickness:36-40mm Shaft: ϕ 6mm; ϕ 8mm; ϕ 10mm Pulse: 1024ppr,2048ppr Circuit: Sin/Cos Speed: $\leq$ 6000 rpm Working Temperature: -40~+95°C Grade:IP50;IP65 Weight: 420g
	KS60	Sin/Cos Optcal Encoder-Hollow shaft Outer Dia: ϕ 60mm; Thickness:40mm Shaft: ϕ 6mm- ϕ 15mm (Thru-hole) Pulse: 1024ppr,2048ppr Circuit: Sin/Cos Speed: $\leq$ 3000 rpm Working Temperature: -40~+95°C Grade:IP65 Weight: 350g			

3

Incremental Encoder High-protection IP67



- ▲ Hengxiang can provide encoders with stainless steel housing
- ▲ Used in harsh industrial environments with large amounts of moisture, corrosive or caustic
- ▲ Shaft ranges from 6mm-30mm
- ▲ Pulse up to 20000ppr
- ▲ Highest protection grade IP67

Model Selection

	PGS38	Stainless Steel Incremental-Solid Shaft Outer Dia:φ38mm; Thickness:28mm Shaft: φ6mm Pulse: 120-32768ppr Circuit: NPN;PNP;Voltage;PP;HTL;TTL Speed:≤6000 rpm Working Temperature: -40~+95°C Grade:IP67 Weight: 160g
	PGK50	Stainless Steel Incremental-Hollow Shaft Outer Dia:φ50mm; Thickness:27mm Shaft: φ10-15mm (Thru-hole) Pulse: 1000-48000ppr Phase: A/B/Z/U/V/W Poles: 6 ; 8 Circuit: NPN;PNP;Voltage;PP;HTL;TTL Speed:≤3000 rpm Working Temperature: -40~+95°C Grade:IP67 Weight: 150g
	PGK96	Incremental Hollow Shaft Outer Dia:φ96mm; Thickness:49.5mm Shaft: φ10mm-φ30mm (Thru-hole) Pulse: 1000-65536ppr Circuit: PP;TTL;HTL Speed:≤3000 rpm Working Temperature: -40~+90°C Grade:IP67 Weight: 450g

4

Incremental Encoder Solid shaft



- ▲ Solid shaft incremental encoders provide precise position and speed feedback
- ▲ Photoelectric optical sensing
- ▲ Outer diameter 9.5 mm to 70 mm
- ▲ Shaft diameter $\phi 2.5\text{mm}-\phi 15\text{mm}$
- ▲ Maximum pulse 65536ppr
- ▲ Supports multiple signal outputs of NPN/PNP/voltage/push-pull/HTL/TTL/RS422

Model Selection

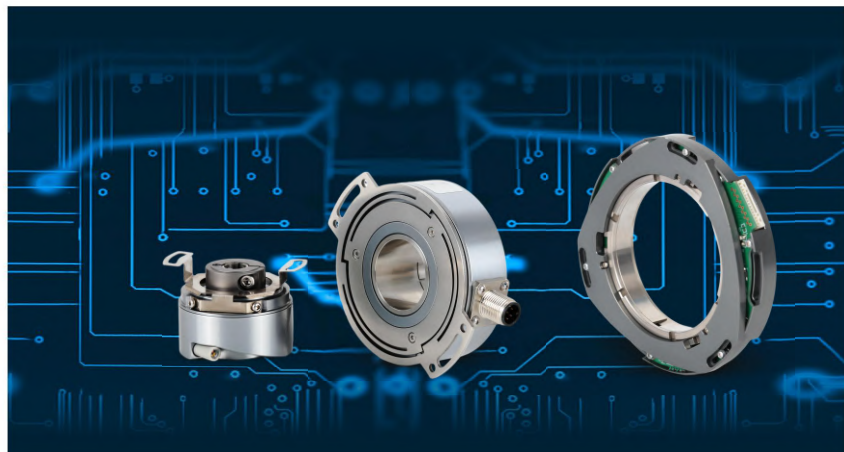
	S9.6F	Incremental Optical-Solid Shaft Outer Dia: $\phi 9.6\text{mm}$; Thickness: 17mm Shaft: $\phi 3\text{mm}$ Pulse: 360-5120ppr Phase: A+/A-/B+/B-/Z+/Z- Circuit: NPN;TTL Speed: $\leq 5000\text{ rpm}$ Working Temperature: $-20\sim +85^{\circ}\text{C}$ Grade: IP50 Weight: 15g		S18	Incremental Optical-Solid Shaft Outer Dia: $\phi 18\text{mm}$; Thickness: 18mm Shaft: $\phi 2.5\text{mm}$ Pulse: 36-16384ppr Phase: A+/A-/B+/B-/Z+/Z- Circuit: NPN;TTL Speed: $\leq 5000\text{ rpm}$ Working Temperature: $-10\sim +70^{\circ}\text{C}$ Grade: IP40 Weight: 20g
	S25	Incremental Optical-Solid Shaft Outer Dia: $\phi 25\text{mm}$; Thickness: 30mm Shaft: $\phi 4\text{mm}$ Pulse: 36-20000ppr Phase: A+/A-/B+/B-/Z+/Z- Circuit: NPN;PNP;Voltage;PP;HTL;TTL Speed: $\leq 6000\text{ rpm}$ Working Temperature: $-20\sim +80^{\circ}\text{C}$ Grade: IP50 Weight: 50g		S30	Incremental Optical-Solid Shaft Outer Dia: $\phi 30\text{mm}$; Thickness: 30mm Shaft: $\phi 4\text{mm}$ Pulse: 36-20000ppr Phase: A+/A-/B+/B-/Z+/Z- Circuit: NPN;PNP;Voltage;PP;HTL;TTL Speed: $\leq 5000\text{ rpm}$ Working Temperature: $-20\sim +80^{\circ}\text{C}$ Grade: IP50 Weight: 60g
	S30C	Incremental Optical-Solid Shaft Outer Dia: $\phi 30\text{mm}$; Thickness: 29mm Shaft: $\phi 4\text{mm}; \phi 6\text{mm}$ Pulse: 36-20000ppr Phase: A+/A-/B+/B-/Z+/Z- Circuit: NPN;Voltage;PP;HTL;TTL Speed: $\leq 6000\text{ rpm}$ Working Temperature: $-30\sim +90^{\circ}\text{C}$ Grade: IP65 Weight: 100g		S38	Incremental Optical-Solid Shaft Outer Dia: $\phi 38\text{mm}$; Thickness: 28mm Shaft: $\phi 5\text{mm}; \phi 6\text{mm}$ Pulse: 50-32768ppr Phase: A+/A-/B+/B-/Z+/Z- Circuit: NPN;PNP;Voltage;PP;HTL;TTL Speed: $\leq 6000\text{ rpm}$ Working Temperature: $-20\sim +90^{\circ}\text{C}$ Grade: IP50;IP65 Weight: 120g

Incremental Encoder Solid shaft

	SH39	Ultra-high Resolution Solid Shaft Outer Dia:φ39mm; Thickness:31.5mm Shaft: φ6mm-φ10mm Pulse: 10000-1048576ppr Phase: A+/A-/B+/B-/Z+/Z- Circuit: PP; HTL;TTL Speed:≤6000 rpm Working Temperature: -40~+95°C Grade:IP50;IP65 Weight:130g		S50	Incremental Optical-Solid Shaft Outer Dia:φ50mm; Thickness:30mm Shaft: φ8mm Pulse: 9-48000ppr Phase: A+/A-/B+/B-/Z+/Z- Circuit:NPN;PNP;Voltage;PP;HTL;TTL Speed:≤6000 rpm Working Temperature: -20~+90°C Grade:IP50;IP65 Weight: 190g
	S52	Incremental Optical-Solid Shaft Outer Dia:φ51mm; Thickness:29mm Shaft: φ8mm Pulse: 100-48000ppr Poles: 4; 6; 8 Phase: A/B/Z/U/V/W Circuit: NPN;PNP;Voltage;PP;HTL;TTL Speed:≤3000 rpm Working Temperature: -20~+85°C Grade:IP50;IP65 Weight: 300g		S50F	Incremental Optical-Solid Shaft Flange:52x52mm; Thickness:35.7mm Shaft: φ8mm Pulse: 9-48000ppr Phase: A+/A-/B+/B-/Z+/Z- Circuit: NPN;PNP;Voltage;PP;HTL;TTL Speed:≤6000 rpm Working Temperature: -20~+90°C Grade:IP50;IP65 Weight: 220g
	S58	Incremental Optical-Solid Shaft Outer Dia:φ58mm; Thickness:36-40mm Shaft:φ6mm;φ8mm;φ10mm Pulse: 9-65536ppr Phase: A+/A-/B+/B-/Z+/Z- Circuit: NPN;PNP;Voltage;PP;HTL;TTL Speed:≤6000 rpm Working Temperature: -20~+80°C Grade:IP50;IP65 Weight: 420g		S52F	Incremental Optical-Solid Shaft Flangeφ52*52mm; Thickness:44mm Shaft: φ10mm Pulse: 9-48000ppr Phase: A+/A-/B+/B-/Z+/Z- Circuit:NPN;PNP;Voltage;PP;HTL;TTL Speed:≤6000 rpm Working Temperature: -20~+85°C Grade:IP50;IP65 Weight: 300g
	S65	Incremental Optical-Solid Shaft Outer Dia:φ61mm; Thickness:56-60mm Shaft: φ8mm Pulse: 9-48000ppr Phase: A+/A-/B+/B-/Z+/Z- Circuit: NPN;PNP;Voltage;PP;HTL;TTL Speed:≤5000 rpm Working Temperature: -20~+90°C Grade:IP50;IP65 Weight: 350g		S65F	Incremental Optical-Solid Shaft Flangeφ65*65mm; Thickness:56mm Shaft: φ8mm Pulse: 9-48000ppr Phase: A+/A-/B+/B-/Z+/Z- Circuit: NPN;PNP;Voltage;PP;HTL;TTL Speed:≤5000 rpm Working Temperature: -20~+80°C Grade:IP50;IP65 Weight: 370g
	S66	Incremental Optical-Solid Shaft Outer Dia:φ66mm; Thickness:58mm Shaft: φ10mm Pulse: 9-48000ppr Phase: A+/A-/B+/B-/Z+/Z- Circuit: NPN;PNP;Voltage;PP;HTL;TTL Speed:≤5000 rpm Working Temperature: -20~+80°C Grade:IP50;IP65 Weight: 370g		SC65F	Incremental Optical-Solid Shaft Flange:φ68*68mm; Thickness:58mm Shaft: φ15mm with keyway Pulse: 9-48000ppr Phase: A+/A-/B+/B-/Z+/Z- Circuit: NPN;PNP;Voltage;PP;HTL;TTL Speed:≤5000 rpm Working Temperature: -20~+90°C Grade:IP50;IP65 Weight: 590g
	S70	Incremental Optical-Solid Shaft Outer Dia:φ70mm; Thickness:60mm Shaft: φ8mm Pulse: 9-48000ppr Phase: A+/A-/B+/B-/Z+/Z- Circuit: NPN;PNP;Voltage;PP;HTL;TTL Speed:≤5000 rpm Working Temperature: -20~+80°C Grade:IP50;IP65 Weight: 450g			

5

Incremental Encoder Hollow shaft

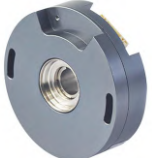


- ▲ Hollow shaft incremental encoders provide precise position and speed feedback
- ▲ Photoelectric optical sensing
- ▲ Outer diameter $\phi 18$ mm to $\phi 158$ mm
- ▲ Hollow Shaft diameter $\phi 2.5$ mm- $\phi 82$ mm
- ▲ Maximum pulse 16,777,216 ppr
- ▲ Supports multiple signal outputs of NPN/PNP/voltage/push-pull/HTL/TTL/RS422

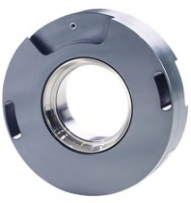
Model Selection

	K18	Incremental Optical-Hollow Shaft Outer Dia: $\phi 18$ mm; Thickness: 18 mm Shaft: $\phi 2.5$ mm (Blind hole) Pulse: 36-16384 ppr Phase: A+/B+/Z+/A-/B-/Z- Circuit: NPN; TTL Speed: ≤ 5000 rpm Working Temperature: $-10 \sim +70^{\circ}\text{C}$ Grade: IP40 Weight: 25g		K22	Incremental Optical-Hollow Shaft Outer Dia: $\phi 22$ mm; Thickness: 18 mm Shaft: $\phi 4$ mm- $\phi 6.5$ mm (Blind hole) Pulse: 36-16384 ppr Phase: A+/A-/B+/B-/Z+/Z- Circuit: NPN; TTL (DV5V) Speed: ≤ 5000 rpm Working Temperature: $-20 \sim +80^{\circ}\text{C}$ Grade: IP50 Weight: 35g
	KB35	Incremental Optical -Hollow Shaft Outer Dia: $\phi 35$ mm; Thickness: 17.5 mm Shaft: $\phi 6$ mm; $\phi 8$ mm (Thru-hole) Pulse: 1000-5000 ppr Phase: A/B/Z/U/V/W Poles: 4; 6; 8 Circuit: NPN; Voltage; PP; HTL; TTL Speed: ≤ 6000 rpm Working Temperature: $-20 \sim +90^{\circ}\text{C}$		PN35	Incremental Optical-Hollow Shaft Outer Dia: $\phi 35$ mm; Thickness: 15 mm Shaft: $\phi 6$ mm; $\phi 8$ mm (Thru-hole) Pulse: 1024-5000 ppr Phase: A/B/Z/U/V/W Poles: 4; 6; 8 Circuit: NPN; PNP; HTL; TTL Speed: ≤ 10000 rpm Working Temperature: $-20 \sim +85^{\circ}\text{C}$ Grade: IP50 Weight: 70g
	K35	Incremental Optical-Hollow Shaft Outer Dia: $\phi 35$ mm; Thickness: 35 mm Shaft: $\phi 6$ mm- $\phi 10$ mm (Blind hole) Pulse: 50-32768 ppr Poles: 4; 6; 8 Phase: A/B/Z/U/V/W Circuit: NPN; PNP; Voltage; PP; HTL; TTL Speed: ≤ 5000 rpm Working Temperature: $-20 \sim +85^{\circ}\text{C}$ Grade: IP50 Weight: 100g		KH35	Incremental High Pulse -Hollow Shaft Outer Dia: $\phi 35$ mm; Thickness: 16.2 mm Shaft: $\phi 6$ mm; $\phi 8$ mm (Thru-hole) Pulse: 10000 ppr-524288 ppr Phase: A+/A-/B+/B-/Z+/Z- Circuit: PP; HTL; TTL Speed: ≤ 5000 rpm Working Temperature: $-40 \sim +85^{\circ}\text{C}$ Grade: IP50 Weight: 70g

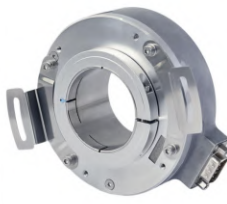
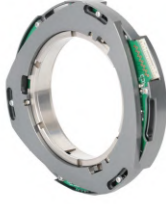
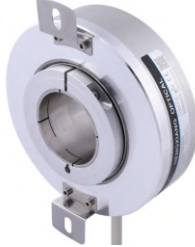
Incremental Encoder Hollow shaft

	KN35	Incremental Optical-Hollow Shaft Outer Dia:φ35mm;Thickness:18mm Shaft: φ6mm-φ8mm (Blind&Thru-hole) ;φ7mm (Taper) ; Pulse: 120-32768ppr Phase: A/B/Z/U/V/W Poles: 4; 6; 8 Circuit: NPN;PNP; Voltage; PP; TTL; HTL Speed:≤5000 rpm Working Temperature: -20~+85°C Grade:IP40 Weight: 80g		K38	Incremental Optical-Hollow Shaft Outer Dia:φ38mm;Thickness:38mm Shaft: φ5-8mm (Blind-hole) φ6-6.35mm (Thru-hole) Pulse: 50-32768ppr Phase: A+/A-/B+/B-/Z+/Z- Circuit:NPN;PNP;Voltage;PP;HTL;TTL Speed:≤6000 rpm (IP50) ≤4000 rpm (IP65) Working Temperature: -20~+90°C Grade:IP50;IP65 Weight: 140g
	KH39	Ultra-high Resolution Hollow Shaft Outer Dia:φ39mm; Thickness:41mm Shaft: φ6mm-φ10mm (Blind hole) Pulse: 10000-1048576ppr Phase: A+/A-/B+/B-/Z+/Z- Circuit: PP; HTL;TTL Speed:≤6000 rpm Working Temperature: -40~+95°C Grade:IP50;IP65 Weight: 130g		KN40	Incremental Optical-Hollow Shaft Outer Dia:φ40mm;Thickness:20mm Shaft: φ6-φ10mm (Blind&Thru-hole) ; φ9mm (Hollow taper) ; φ10mm (Solid taper) Pulse: 360-40000ppr Phase: A/B/Z/U/V/W Poles: 4; 6; 8 Circuit: NPN;PNP;Voltage;PP;HTL;TTL; Speed:≤5000 rpm Working Temperature: -20~+85°C Grade:IP40 Weight: 90g
	K42	Incremental Optical-Hollow Shaft Outer Dia:φ42mm; Thickness:33mm Shaft: φ6mm;φ8mmφ10mm Pulse: 900-32768ppr (Thru-hole) Phase:A/B/Z/U/V/W Poles:4;6;8 Circuit: NPN;PNP;Voltage;PP;HTL;TTL Speed:≤6000 rpm Working Temperature: -40~+95°C Grade:IP50;IP65 Weight: 150g		KH42	Incremental High resolution -Hollow Shaft Outer Dia:φ35mm; Thickness:33mm Shaft: φ6mm-φ10mm (Thru-hole) Pulse: 40000ppr-1048576ppr Phase: A+/A-/B+/B-/Z+/Z- Circuit: PP; HTL;TTL Speed:≤6000 rpm Working Temperature: -40~+95°C Grade:IP50 & IP65 Weight: 150g
	Z48	Incremental Optical Bearingless Outer Dia:φ48mm; Thickness:23mm Shaft: φ8mm (Thru-hole) Pulse: 1000-5000ppr Phase: A/B/Z/U/V/W Poles: 4; 6; 8 Circuit: NPN;HTL;TTL Speed:≤5000 rpm Working Temperature: -20~+85°C Weight: 60g		P48	Incremental Optical-Hollow Shaft Outer Dia:φ48mm; Thickness:11mm Shaft: φ8-φ14mm (Thru-hole) Pulse: 1024-10000ppr Poles: 4; 6; 8 Phase: A/B/Z/U/V/W Circuit:NPN;PNP;HTL;TTL; Speed:≤5000 rpm Working Temperature: -20~+85°C Weight: 60g
	PC48	Incremental Optical-Hollow Shaft Outer Dia:φ48mm; Thickness:14mm Shaft: φ8-φ14mm (Thru-hole) Pulse: 1024-10000ppr Phase: A/B/Z/U/V/W Poles: 6; 8; 16 Circuit: NPN;PNP;HTL;TTL Speed:≤5000 rpm Working Temperature: -20~+85°C Grade:IP50 Weight: 70g		PN48	Incremental Optical-Hollow Shaft Outer Dia:φ48mm; Thickness:14mm Shaft: φ8-14mm(Thru-hole) Pulse: 1024-5000ppr Phase: A/B/Z/U/V/W Poles: 6; 8; 16 Circuit: NPN;PNP;HTL;TTL Speed:≤5000 rpm Working Temperature: -20~+85°C Grade:IP50 Weight: 80g
	K48	Incremental Optical-Hollow Shaft Outer Dia:φ48mm; Thickness:34mm Shaft: φ6-12mm (Blind&Thru-hole) Pulse: 50-10000ppr Phase: A/B/Z/U/V/W Poles: 4; 6; 8 Circuit:NPN;PNP;Voltage;PP;HTL;TTL; Speed:≤5000 rpm Working Temperature: -20~+85°C Grade:IP40 Weight: 140g		KZ48	Incremental Optical-Hollow Shaft Outer Dia:φ48mm; Thickness:34mm Shaft: φ9mm (Taper hole) Pulse: 50-10000ppr Phase: A/B/Z/U/V/W Poles: 4; 6; 8 Circuit: NPN;PNP;Voltage;PP;HTL;TTL Speed:≤5000 rpm Working Temperature: -20~+85°C Grade:IP40 Weight: 140g

Incremental Encoder Hollow shaft

	K50	Incremental Optical-Hollow Shaft Outer Dia:φ50mm; Thickness:39mm Shaft:φ8mm-φ15mm (Blind&Thru-hole) Pulse: 9-48000ppr Phase: A+/A-/B+/B-/Z+/Z- Circuit: NPN;PNP;Voltage;PP;HTL;TTL Speed:≤4000 rpm Working Temperature: -20~+90°C Grade:IP50;IP65 Weight: 200g		K52	Incremental Optical-Hollow Shaft Outer Dia:φ51mm; Thickness:39mm Shaft: φ8-15mm (Blind&Thru-hole) Pulse: 9-48000ppr Phase: A/B/Z/U/V/W Poles: 4; 6; 8 Circuit: NPN;PNP;Voltage;PP;HTL;TTL Speed:≤3000 rpm Working Temperature: -20~+80°C Grade:IP50;IP65 Weight: 310g
	Z58	Incremental Optical-Bearingless Outer Dia:φ58mm; Thickness:15mm Shaft: φ14mm-φ24mm (Thru-hole) Pulse: 1000-10000ppr Phase: A/B/Z/U/V/W Poles: 8; 10; 16 Circuit: NPN;PNP;Voltage;PP;HTL;TTL Speed:(Top response frequency/-Pulse)*60 Working Temperature: -20~+95°C Weight: 85g		P58	Incremental Optical-Hollow Shaft Outer Dia:φ58mm; Thickness:11mm Shaft: φ14mm-φ24mm (Thru-hole) Pulse: 1024-5000ppr Phase: A/B/Z/U/V/W Poles: 8; 10; 16 Circuit:NPN;PNP;HTL;TTL; Speed:≤5000 rpm Working Temperature: -20~+85°C Weight: 80g
	PC58	Incremental Optical-Hollow Shaft Outer Dia:φ58mm; Thickness:14mm Shaft: φ14mm-φ24mm (Thru-hole) Pulse: 1024-10000ppr Poles: 6; 8; 16 Phase: A/B/Z/U/V/W Circuit: NPN;PNP;HTL;TTL; Speed:≤5000 rpm Working Temperature: -20~+95°C Grade:IP50 Weight: 90g		PN58	Incremental Optical-Hollow Shaft Outer Dia:φ58mm; Thickness:14mm Shaft: φ14mm-φ24mm (Thru-hole) Pulse: 1024-10000ppr Phase: A/B/Z/U/V/W Poles: 8; 10; 16 Circuit: NPN;PNP;HTL;TTL; Speed:≤5000 rpm Working Temperature: -20~+85°C Grade:IP50 Weight: 90g
	K58	Incremental Optical-Hollow Shaft Outer Dia:φ58mm; Thickness:24mm Shaft: φ15-φ22mm (Thru-hole) Pulse: 1000-57600ppr Phase: A/B/Z/U/V/W Poles: 4; 6; 8 Circuit: NPN;PNP;Voltage;PP;HTL;TTL Speed:≤3000 rpm Working Temperature: -20~+85°C Grade:IP50 Weight: 150g		KH58	Ultra-high Resolution Hollow Shaft Outer Dia:φ58mm; Thickness:37mm Shaft: φ10mm-φ15mm (Thru-hole) Pulse: 10000-16777216ppr Phase: A+/A-/B+/B-/Z+/Z- Circuit: PP; HTL;TTL Speed:≤5000 rpm Working Temperature: -20~+85°C Grade:IP65 Weight: 200g
	KN58	Incremental Optical-Hollow Shaft Outer Dia:φ58mm; Thickness:26mm Shaft: φ8mm-φ14mm (Thru-hole) Pulse: 1000-10000ppr Phase: A+/A-/B+/B-/Z+/Z- Circuit: NPN&PNP; Voltage; PP; TTL; HTL Speed:≤5000 rpm Working Temperature: -20~+90°C Grade:IP65 Weight: 200g		KP58	Incremental Optical-Hollow Shaft Outer Dia:φ58mm; Thickness:11mm Shaft: φ14mm-φ25mm (Thru-hole) Pulse: 100-5000ppr Phase: A+/A-/B+/B-/Z+/Z- Circuit:NPN;PNP;Voltage;PP;HTL;TTL Speed:≤3000 rpm Working Temperature: -40~+95°C Grade: IP65 Weight: 180g
	K60	Incremental Optical-Hollow Shaft Outer Dia:φ60mm; Thickness:40mm Shaft: φ6mm-φ15mm (Thru-hole) Pulse: 9-65536ppr Phase: A+/A-/B+/B-/Z+/Z- Circuit: NPN;PNP;Voltage;PP;HTL;TTL Speed:≤5000 rpm Working Temperature: -40~+90°C Grade:IP65 Weight: 350g		K66	Incremental Optical-Hollow Shaft Outer Dia:φ66mm; Thickness:18.5mm Shaft: φ25mm-φ30mm (Thru-hole) Pulse: 1024-10000ppr Poles: 8 Phase: A/B/Z/U/V/W Circuit: NPN;PNP;HTL;TTL; Speed:≤5000 rpm Working Temperature: -20~+85°C Grade:IP50 Weight: 180g

Incremental Encoder Hollow shaft

	PN72	Incremental Optical-Hollow Shaft Outer Dia:φ72mm; Thickness:15mm Shaft: φ25mm-φ30mm (Thru-hole) Pulse: 1024-10000ppr Phase: A/B/Z/U/V/W Poles: 8 Circuit: NPN;PNP;HTL;TTL; Speed:≤5000 rpm Working Temperature: -20~+85°C Grade:IP50 Weight: 200g		K76	Incremental Optical-Hollow Shaft Outer Dia:φ76.5mm; Thickness:37mm Shaft: φ18mm-φ30mm(Thru-hole) Pulse: 100-65536ppr Phase: A/B/Z/U/V/W Poles: 4; 6; 8 Circuit: NPN;PNP;Voltage;PP;HTL;TTL Speed:≤3000 rpm Working Temperature: -20~+85°C Grade:IP50 Weight: 360g
	KC76	Incremental Optical-Hollow Shaft Outer Dia:φ76.5mm; Thickness:37mm Shaft: φ18mm-φ25mm (Thru-hole with keyway) Pulse: 100-65536ppr Phase: A/B/Z/U/V/W Poles: 4; 6; 8 Circuit: NPN;PNP;Voltage;PP;HTL;TTL Speed:≤3000 rpm Working Temperature: -20~+85°C Grade:IP50 Weight: 360g		K77	Incremental Optical-Hollow Shaft Outer Dia:φ77mm; Thickness:31mm Shaft: φ25mm;φ30mm (Thru-hole) Pulse: 500-10000ppr Phase: A+/A-/B+/B-/Z+/Z- Circuit: NPN;PNP;PP;HTL;TTL Speed:≤3000 rpm Working Temperature: -20~+85°C Grade:IP65 Weight: 400g
	K80	Incremental Optical-Hollow Shaft Outer Dia:φ80mm; Thickness:50mm Shaft: φ10.5mm, φ12mm (Blind-hole) Pulse: 1000-32768ppr Phase: A+/A-/B+/B-/Z+/Z- Circuit: NPN;PNP;Voltage;PP;HTL;TTL Speed:≤2000 rpm Working Temperature: -20~+85°C Grade:IP50;IP65 Weight: 600g		K100	Incremental Optical-Hollow Shaft Outer Dia:φ100mm; Thickness:38mm Shaft: φ30mm-φ45mm (Thru-hole) Pulse: 512-100000ppr Phase: A/B/Z/U/V/W Poles: 6; 8; 10; 16 Circuit: NPN;PNP;Voltage;PP;HTL;TTL Speed:≤3000 rpm Working Temperature: -20~+85°C Grade:IP50 Weight: 670g
	P100	Incremental Optical Bearingless Outer Dia:φ100mm; Thickness:12.8mm Shaft: φ40mm;φ63mm (Thru-hole) Pulse: 1000-10000ppr Phase: A/B/Z/U/V/W Poles: 6; 8; 16 Circuit: NPN;PNP;Voltage;PP;HTL;TTL Speed:≤6000 rpm Working Temperature: -20~+85°C Weight: 150g		KC100	Incremental Optical-Hollow Shaft with keyway Outer Dia:φ100mm; Thickness:30mm Shaft: φ30mm-φ45mm (Thru-hole) Pulse: 512-100000ppr Phase: A/B/Z/U/V/W Poles: 6; 8; 10; 16 Circuit: NPN;PNP;Voltage;PP;HTL;TTL Speed:≤3000 rpm Working Temperature: -20~+85°C Grade:IP50 Weight: 670g
	Z100	Incremental Optical Bearingless Outer Dia:φ100mm; Thickness:16mm Shaft: φ40mm;φ63mm Pulse: 1000-10000ppr Poles: 8; 10; 16 Phase: A/B/Z/U/V/W Circuit: NPN;PNP;Voltage;PP;HTL;TTL Speed:(Top response frequency/Pulse)*60 Working Temperature: -20~+95°C Weight: 200g		K130	Incremental Optical-Hollow Shaft Outer Dia:φ130mm; Thickness:39mm Shaft: φ48mm-φ70mm (Thru-hole) Pulse: 1024-144000ppr Phase: A+/A-/B+/B-/Z+/Z- Circuit: NPN;PNP;Voltage;PP;HTL;TTL Speed:≤3000 rpm Working Temperature: -20~+85°C Grade:IP50 Weight: 1200g
	K158	Incremental Optical-Hollow Shaft Outer Dia:φ158mm; Thickness:43mm Shaft: φ70mm-φ82mm (Thru-hole) Pulse: 1024-160000ppr Phase: A+/A-/B+/B-/Z+/Z- Circuit: NPN;PNP;Voltage;PP;HTL;TTL Speed:≤3000 rpm Working Temperature: -20~+85°C Grade:IP50 Weight: 1800g			