Motor Feedback Systems HC18

For AC Synchronous & BLDC Motors Incremental

- Compact hollow shaft encoder as feedback, ideal for AC Synchronous & BLDC Motors
- Resolution up to 5,000 ppr, optional commutation 0,4,6,8 and 10 pole
- Max. speed up to 6,000 rpm
- Frequency response to 500kHz, meet the high speed and accuracy application request
- Standard Operating temperature –20···+120° C
- Outside diameter 45mm and waisted shape design, easy to use 40mm tether
- Optional share wire type, less wiring, thicker cable, lower attenuation of signal
- Radial plug with self – lock, easy to install and reliable
- LED current self–adjusted and low consumption current

CE c UL us LISTED RoHS 2002/95/EC

GENERAL INFORMATION

The type HC18 encoder provides high performance, cost effective feedback for AC Synchro–nous & BLDC Motors. Frequency response to 500kHz, 5000ppr encoder can work at 6000 rpm, meet the high speed and accuracy application request. A compliant tether allows easy mounting with high tolerance to motor shaft movement and 20 degrees of adjustment to align the signal outputs to the shaft position.
A superior optical configuration allows for generous internal component work at high operat–ing temperatures 120° C. High temperature rated grease is standard for extended bearing life. No special tools are required for installation.Optional share wire, less wiring, thicker cable, lower attenuation of signal.

NUMBER OF PULSES

2500，5000；

Optional additional 0,4,6,8 or 10 pole commutation signals and share wire type

TECHNICAL DATA mechanical

Outside diameter	45mm (with cover)
Depth	32.5mm
Shaft diameter	Taper hollow shaft (Ø9,1:10), hollow shaft Ø6 or Ø8
Flange (Housing mounting)	Tether
Protection class shaft input	IP40
Protection class housing	IP40
Max. shaft load, axial/radial	50N / 80N
Radial runout of mating shaft	±0.2mm max.(includes shaft perpendicularity to mounting surface)
Axial endplay of mating shaft	±0.8mm max.
Max.speed	6000rpm
Operating temperature	–20 ~ +120℃
Storage temperature	–20 ~ +85℃
Relative humidity	95% non–condensing
Shock resistance	1000 m/s^2(11 ms)
Vibration resistance	100 m/s^2(50 ~ 2000 Hz)
Material Base Cover Shaft	 Aluminum Plastic Brass
Weight	120g typ.
Connection[1]	20 pin SHLD connector, with mating plug + cable

[1] Connector model on the encoder is JST SM20B–SHLDS–G–TF，mating plug model is ST SHLDP–20V–S–1(B).

TECHNICAL DATA electrical

Supply voltage	DC 5V ± 10% (SELV)
Max.current w/o load	Max.100mA
Output signal	Incremental + commutation, optical
Resolution	2500 and 5000 ppr
Phasing A to B	A leads B by 90° cw (view on mounting shaft)
Phasing tolerance A to B	± 45° electrical
Max.output frequency	500 kHz
Signal level	Differential Line Driver(RS 422)
Output current	± 20mA
Commutation phasing	U leads V leads W by 120°
Index to U channel	± 1° mech.index pulse center to U channel edge (see signal diagram)
Index signal	Z
Index pulse width	180° (gated B high)

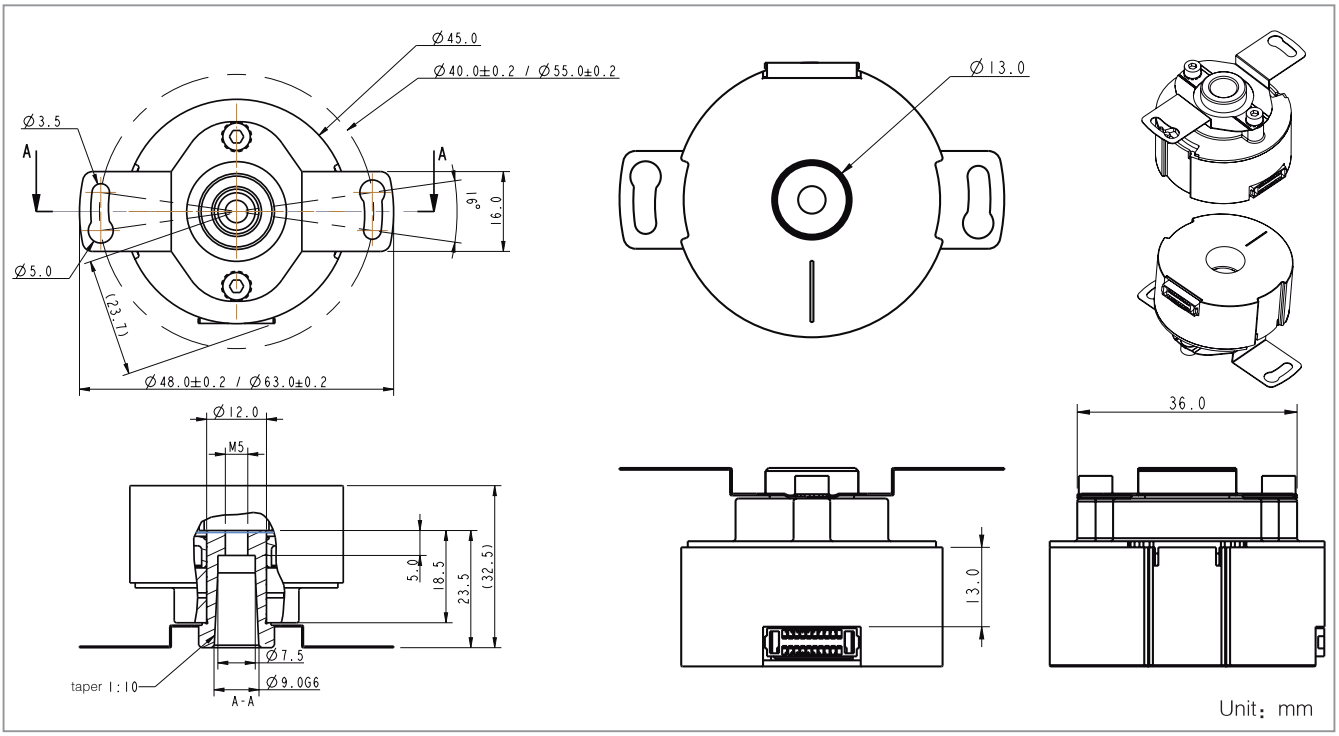
CONNECTION DIAGRAM

PIN	Color	Function	
		Standard	Share wire
1	Red	Vcc	Vcc
2			
3	Black	GND	GND
4			
5	Blue	A	A / U
6	Brown	U	
7	Blue / Black	$\overline{A}$	$\overline{A}$ / $\overline{U}$
8	Brown / Black	$\overline{U}$	
9	Green	B	B / V
10	Grey	V	
11	Green / Black	$\overline{B}$	$\overline{B}$ / $\overline{V}$
12	Grey / Black	$\overline{V}$	
13	Violet	Z	Z / W
14	White	W	
15	Violet / Black	$\overline{Z}$	$\overline{Z}$ / $\overline{W}$
16	White / Black	$\overline{W}$	
17			
18			
19[1]	Shield	Shield	Shield
20			

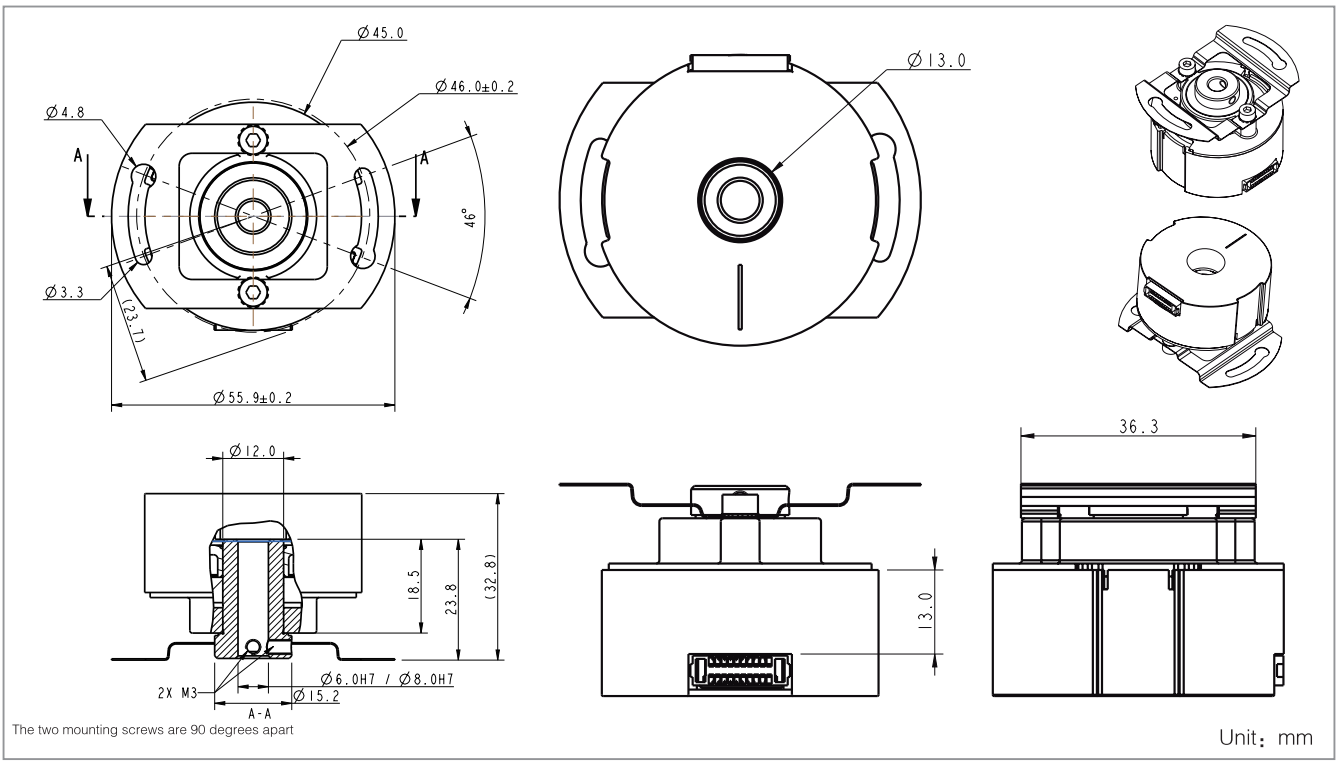
[1] Pin 19 shield have been connected to encoder base.

DEMENSINAL DRAWINGS

Taper hollow shaft(Ø9,1:10) with mounting hole diameter Ø40 or Ø55 tether)

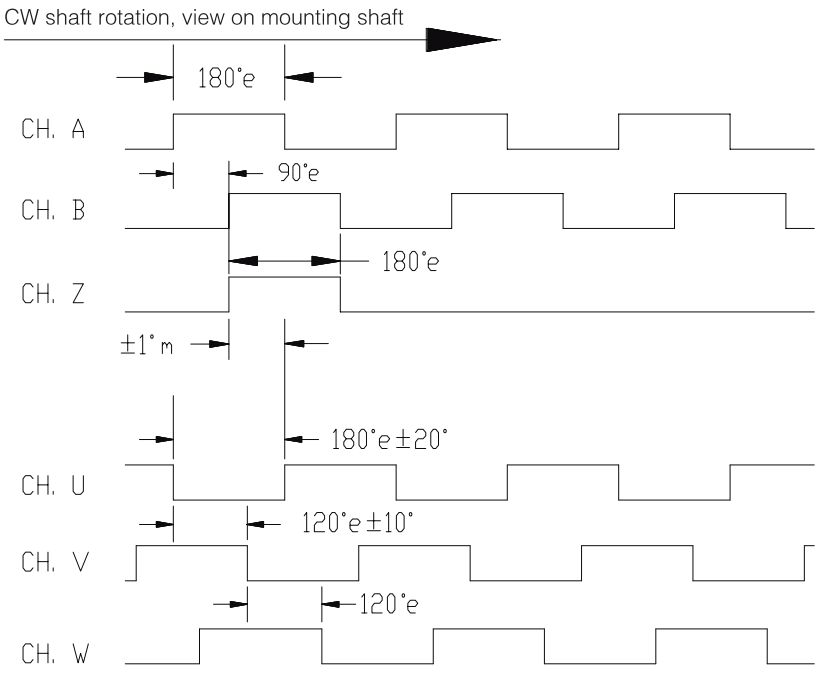


Hollow shaft (Ø6 or Ø8) with mounting hole diameter Ø46 tether)

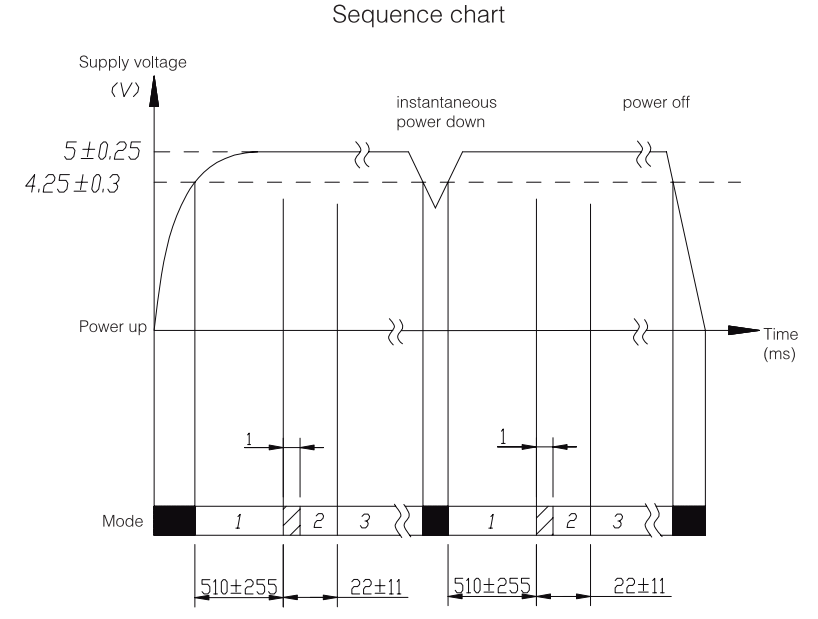


The two mounting screws are 90 degrees apart

SIGNAL DIAGRAM
Standard



Sequence chart of share wire type



Connection			Function / Color	Mode 1	Mode 2	Mode 3
	■ Non using zone		Blue	HZ	U	A
	HZ: high–impedance status		Blue/Black	HZ	$\overline{U}$	$\overline{A}$
			Green	HZ	V	B
	Color	Function	Green/Black	HZ	$\overline{V}$	$\overline{B}$
	Red	C + 5V	Violet	HZ	W	Z
	Black	GND	Violet/Black	HZ	$\overline{W}$	$\overline{Z}$
	Shield	Shield				

ORDERING INFORMATION

Type	Pulses ppr incremental	Poles commutation	Mounting [1]	Electrical [2]	Shaft	Connection [3]
HC18	☐☐☐☐☐ /	☐ –	☐	☐	☐	☐
HC18	**2500** **5000**	**0** without **4** 4 pole **6** 6 pole **8** 8 pole **A** 10 pole	**0** without tether **1** 40mm (1.575") TK **2** 55mm (2.166") TK **3** 46mm (1.811") TK	**D** U_{inc}=DC 5V; $Output_{inc}$=RS 422 **F** U_{inc}=DC 5V; $Output_{inc}$RS 422 U_{com}=DC 5V; $Output_{com}$=RS 422 **S** U=DC 5V; Share wire output=RS 422	**0** Taper hollow shaft(Ø9,1:10) **3** Hollow shaft Ø6 **4** Hollow shaft Ø8	**Z** No connector and cable **A** Mating connector +1 Ft cable **B** Mating connector+ 2 Ft cable **C** Mating connector+ 3 Ft cable **D** Mating connector+ 4 Ft cable **E** Mating connector+ 5 Ft cable **F** Mating connector+ 6 Ft cable **G** Mating connector+ 7 Ft cable **H** Mating connector+ 8 Ft cable

[1] "TK" represents the diameter of the center line of the tether hole to determine the position of the mounting screw of the encoder tether.

[2] U_{inc}: Supply voltage incremental,
U_{com}: Supply voltage commutation (only if commutation is selected)

[3] [1] Connector model on the encoder is JST SM20B–SHLDS–G–TF, mating plug model is ST SHLDP–20V–S–1(B). Other cable length on request.