

# HOLLOW TYPE

# HEF Model



## Heavy Duty 39mm Diameter Encoder

•Most Advanced IP65 Encoder.



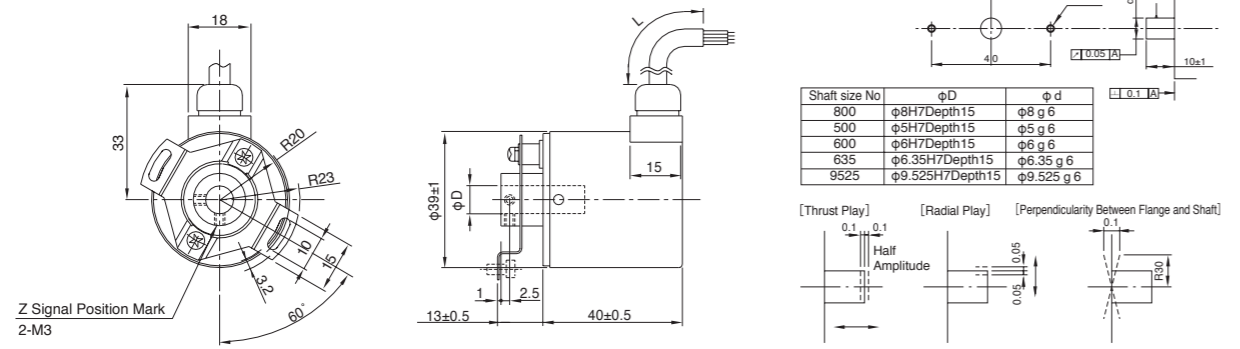
### Model

# HEF- [ ] - 2M [ ] - [ ] [ ] [ ] - [ ] [ ] [ ] - [ ] 00E

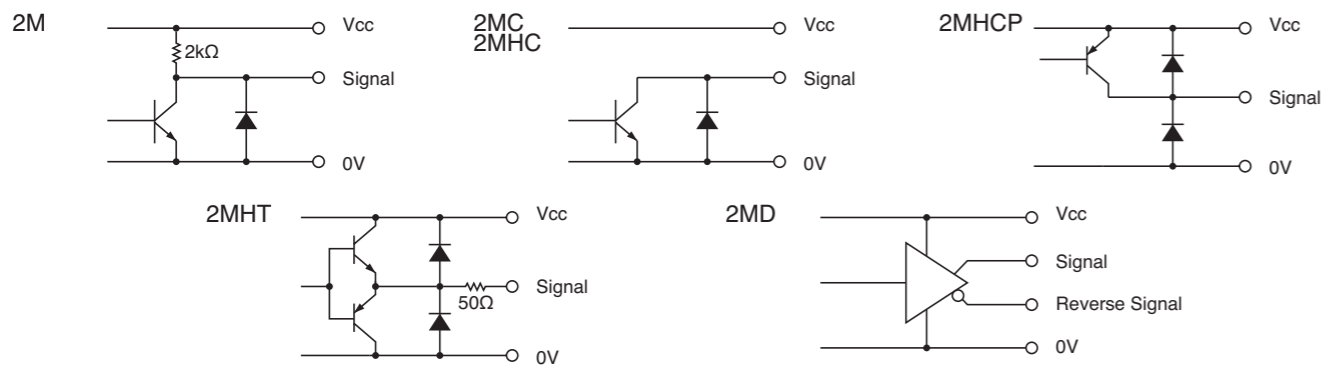
Resolution	Hollow Shaft Diameter	Cable Length	Complying with RoHS
002	500 : φ5	050 : 500mm (Standard)	No Indication: Other than D output
003	600 : φ6	100 : 1000mm	No Indication: D output with LS
0032	635 : φ6.35	300 : 3000mm	C : D output with C-MOS
004	800 : φ8		
005	9525 : φ9.525		
01	No Indication		: Voltage Output
0125	C		: Open Collector Output
02	HC		: Open Collector Output / High Voltage
025	HCP		: PNP Mode Open Collector Output / High Voltage
0256	HT		: Push-Pull Output / High Voltage
03	D		: Line Driver Output
036			Low Power Consumption C-MOS Output Available
04			

Signals — 2M : AB90° Phase Difference + Index Signal

### External Dimension



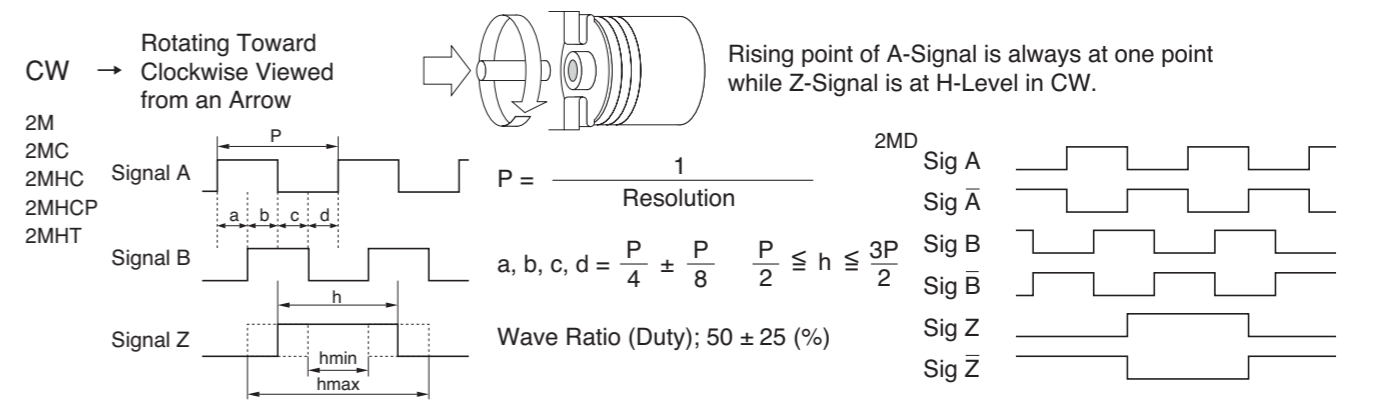
### Output Circuit



### Electrical Spec

TYPE	※1) at Maximum Sink Current		※2) Maximum Source Current			
	2M	2MC	2MHC	2MHCP	2MHT	2MD
Power Supply(Vcc)	DC4.5~13.2 V		DC10.8~26.4 V			DC4.75~5.25V
Current Consumption	80 mA Max	60 mA Max		100 mA Max	60 mA Max	150 mA Max
Output Voltage	"H"	Vcc-1V Min	Vcc-1V Min		Vcc-3V Min	2.5 V Min
	"L" ※1	0.5 V Max		3 V Max		0.5 V Max
Maximum Sink Current	20 mA			40 mA	20 mA	
Rise & Fall Time	1 μs Max					200 ns Max
Maximum Frequency Response	200 kHz		50 kHz	200 kHz		
Withstanding Voltage of Output Tr.	50 V Max.					

### Wave Form



### Electrical Connections

Color	Signal	Color	Signal
Red	Power Supply(Vcc)	White	Signal B
Black	0V	Gray	Signal B-bar
Green or Blue	Signal A	Yellow	Signal Z
White	Signal B	Orange	Signal Z-bar
Yellow	Signal Z		
Shield	NC		

### Mechanical Spec

Starting Torque	4.9x10 <sup>-3</sup> N · m Max
Angular Acceleration	1x10 <sup>5</sup> rad/s <sup>2</sup>
Shaft Loading	Thrust: 9.8N
	Radial: 19.6N
Moment of Inertia	1.2x10 <sup>-6</sup> kg · m <sup>2</sup>
Maximum Permissible Speed	5000min <sup>-1</sup>
Net Weight	300g Max

### Environmental Spec

Operating Temperature	-10°C~+70°C
Storage Temperature	-30°C~+80°C
Humidity	RH 85% Max No Condensation
Vibration	10~55 Hz / 1.5mm X,Y,Z Each 2h
Shock	294m/s <sup>2</sup> , 11ms X, Y, Z Each 3 times
Ingress Protection	IP65