SHAFT TYPE

NOC-SP Model

Heavy Duty Model 50mm Diameter Encoder (IP65)

- Standard Versions of 10～10000P/R for High Accurate Application.

Model

NOC-SP □□-2M□-□□□-□□□-□ □□E

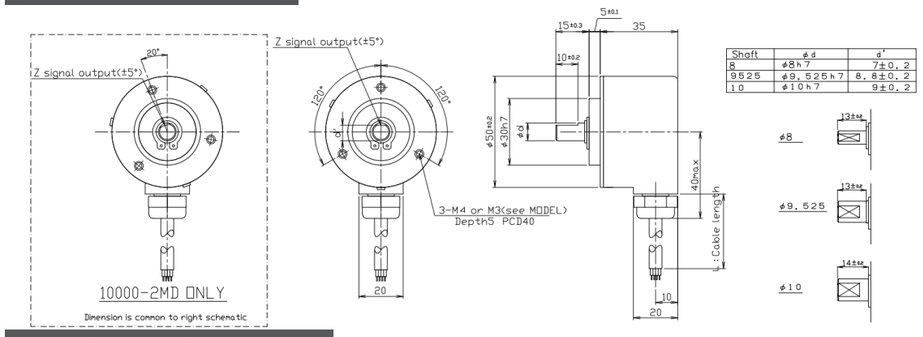
- Style: S: Shaft; P: Dust-Proof & Water-Proof
- Resolution

10	10P/R	600	600P/R
20	20P/R	1000	1000P/R
30	30P/R	1024	1024P/R
40	40P/R	1250	1250P/R
50	50P/R	1800	1800P/R
60	60P/R	2000	2000P/R
100	100P/R	2048	2048P/R
200	200P/R	2500	2500P/R
250	250P/R	3600	3600P/R
300	300P/R	4096	4096P/R
360	360P/R	5000	5000P/R
500	500P/R	10000	10000P/R

※10000 P/R(Line Driver Only)

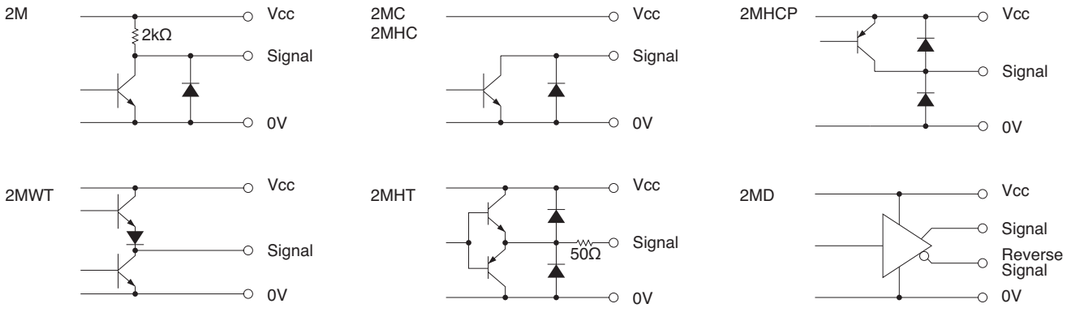
- Output Mode
  - No Indication : Voltage Output
  - C : Open Collector Output
  - HC : Open Collector Output / High Voltage
  - HCP : PNP Mode Open Collector Output / High Voltage
  - HT : Push-Pull Output / High Voltage
  - D : Line Driver Output Standard C-MOS
  - WT : Push-Pull Output / Wide Voltage
- Outer diameter shaft
  - 8 : ϕ8
  - ※(9525 : ϕ9.525)
  - ※(10 : ϕ10)
  - ※ Option
- Cable Length
  - 050 : 500mm (Standard)
  - 100 : 1000mm
  - 300 : 3000mm
- No Indication : Other than D output
- No Indication : D output with LS
- C : D output with C-MOS
- 00 : PCD40 3-M4 Depth 5
- 01 : PCD40 3-M3 Depth 5
- Complying with RoHS
- Signals 2M : AB90° Phase Difference + Index Signal

External Dimension



Shaft	ϕd	d'
8	ϕ8h7	7±0.2
9525	ϕ9.525h7	8.8±0.2
10	ϕ10h7	9±0.2

Output Circuit



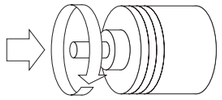
Electrical Spec

※1) at Maximum Sink Current ※2) Maximum Source Current

TYPE		2M	2MC	2MHC	2MHCP	2MHT	2MD	2MWT
Power Supply(Vcc)		DC4.5～13.2 V		DC10.8～26.4 V			DC4.5～5.5V (C-MOS)	DC 4.75～30V
Current Consumption		90 mA Max	70 mA Max		100 mA Max	90 mA Max	70 mA Max (C-MOS)	60 mA Max
Output Voltage	"H"	Vcc-1V Min	———		Vcc-1V Min ※2	Vcc-3V Min	2.5 V Min	Vcc-2.5V Min
	"L" ※1	0.5 V Max			———	3 V Max	0.5 V Max	0.4 V Max
Maximum Sink Current		20 mA				40 mA	20 mA	30 mA
Rise & Fall Time		1 μs Max					200 ns Max	3 μs Max
Maximum Frequency Response		200 kHz			50 kHz	200 kHz(～5000P/R) 1 MHz (10000P/R)		100 kHz
Withstanding Voltage of Output Tr.		———	50 V Max		———			

Wave Form

CW → Rotating Toward Clockwise Viewed from an Arrow

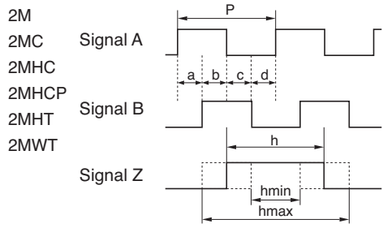


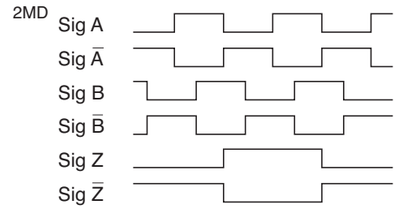
Rising point of A-Signal is always at one point while Z-Signal is at H-Level in CW.

$$P = \frac{1}{\text{Resolution}}$$

$$a, b, c, d = \frac{P}{4} \pm \frac{P}{8} \quad \frac{P}{2} \leqq h \leqq \frac{3P}{2}$$

Wave Ratio (Duty); 50 ± 25 (%)





Electrical Connections

2M 2MC 2MHC 2MHCP 2MHT 2MWT	Color	Signal
	Red	Power Supply(Vcc)
	Black	0V
	Green or Blue	Signal A
	White	Signal B
	Yellow	Signal Z
	Shield	NC

2MD	Color	Signal	Color	Signal
	Red	Power Supply(Vcc)	White	Signal B
	Black	0V	Gray	Signal B̄
	Green	Signal A	Yellow	Signal Z
	Blue	Signal Ā	Orange	Signal Z̄
	Shield	NC		

Mechanical Spec

Starting Torque		9.8×10^{-3}N • m Max
Angular Acceleration		1×10^{5} rad/s^2
Shaft Loading	Thrust	49N
	Radial	78.4N
Moment of Inertia		3×10^{-6}kg • m^2
Maximum Permissible Speed		Instantaneous: 5000min^{-1} Continuous : 3000min^{-1}
Net Weight		250g Max

Environmental Spec

Operating Temperature	–10℃～+70℃
Storage Temperature	– 30℃～+85℃
Humidity	RH 85% Max No Condensation
Vibration	10~55 Hz / 1.5mm X, Y, Z Each 2h
Shock	980m/s^2,11ms X, Y, Z Each 3 times
Ingress Protection	IP65