

Absolute/Incremental type

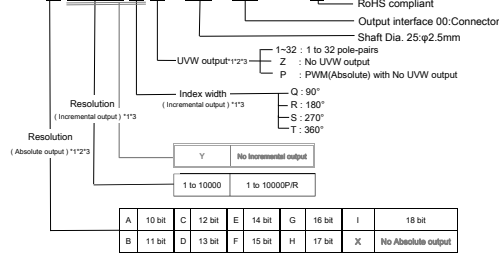
Small

- ◇ Magnetic
- ◇ Shaft type (OD Φ 18mm)



18SA Series

Model

18SA - [] [] [] [] - 25 - 00 - 00E


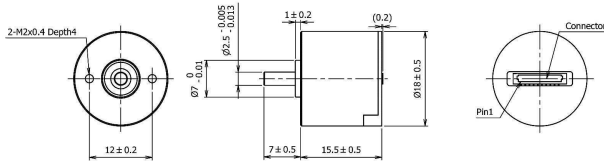
Note:

*1: These output specifications are written before shipment. Do not change in Customers.

*2: Absolute signal and UVW signal cannot be output at the same time.

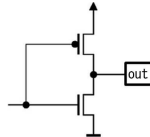
*3: Do not connect to unused signal lines.

External Dimension



Output Circuit

TTL(push pull)

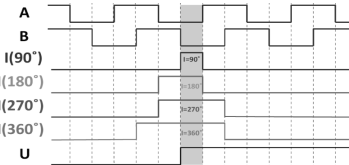


Electrical Spec

Resolution	Absolute output		10 to 18 bit
	Incremental output	ABI	1 to 10000 P/R
		UVW	1 to 32 pole-pairs
Current consumption			40mA Max (No load)
Supply Voltage			DC 4.5V to 5.5V (Ripple 100mV(P-P))
Digital Output Voltage	"L"		VCC-0.5V or more
	"H"		0.5V or less
Power-up time			1s [MAX]
Pull-up low level input current(I _{IL})			120 μ A MAX
Pull-down high level input current(I _{IH})			120 μ A MAX
Insulation resistance			50M Ω
Dielectric resistance			DC 500V(0V $\leftrightarrow$ CASE)
Maximum input voltage			6V
Maximum input (sink) current			4mA
Absolute Output			
Integral Non-linearity			± 0.3 Deg. MAX. Best fit line, (T _{amb} = 25°C at 5V)
Output sampling rate			10MHz (Typ.) Based on SSI Protocol
Incremental output			
Relative angular accuracy			$\pm 10\%$ [Typ.] Reference to an output period at output A and B, at 256 CPR, 5V and 10,000 RPM
AB Accuracy (P= 1/(Pulse/Rev))			DUTY: (P/2) $\pm$ (P/4) Phase: (P/4) $\pm$ (P/8)
I Accuracy (P= 1/(Pulse/Rev))			P $\pm$ (P/10)
UVW Accuracy			$\pm 2^\circ$ mechanical [Typ.]
System reaction time			4ms[Typ.] First ABI pulse detection upon power up
Incremental Output Frequency			1MHz MAX. Frequency = Velocity/RPM $\times$ CPR/60

Wave Form

(Incremental Output)



Mechanical Spec

Starting torque	4.9*10 ⁻⁴ N·m max (at +25°C) *Need a load of 0.2mN·m or more for shaft	
Moment of Inertia	1*10 ⁻⁸ kg·m ² max	
Maximum shaft load	Thrust	4.9N
	Radial	2.94N
Mechanical speed	6000 min ⁻¹ max	
Weight	20g max	

Electrical Connections

Pin	Name	Signal
1	VCC	Supply VCC input
2	GND	Supply Ground
3	M0	SPI Chip select (Absolute mode)
4	M1	SPI Data Input / SSI NSL pin (Absolute mode)/ U commutation Output (UVW mode)
5	M2	SPI/SSI Clock Input (Absolute mode)/ V commutation Output (UVW mode)
6	M3	SPI/SSI Data Out (Absolute mode)/ W commutation Output (UVW mode)
7	A	A (Incremental mode)
8	B	B (Incremental mode)
9	I	I (Incremental mode)
10	MSEL	Mode Selection

Connector: BM10B-SURS-TF (JST)

Environmental Spec

Operating temperature	-10 to 85 °C
Storage temperature	-30 to 85 °C
Relative humidity (No condensation)	85%RH or less
Vibration	10 to 55Hz/1.5mm
Shock	490m/s ² , 11ms
Ingress protection	IP40

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