

Absolute/Incremental type

18SA Series

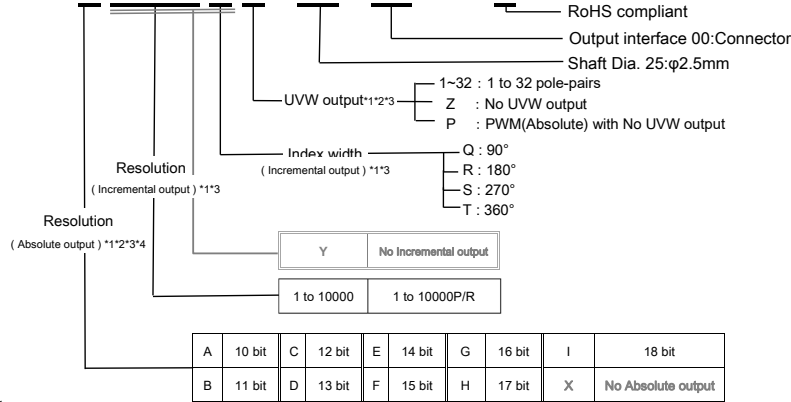


Small

- ◇ Magnetic
- ◇ Shaft type (OD Φ18mm)

Model

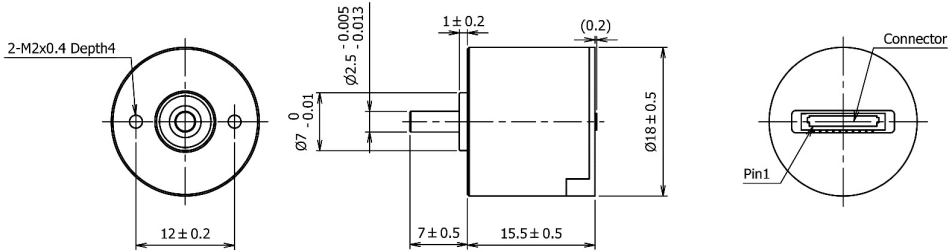
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Note:

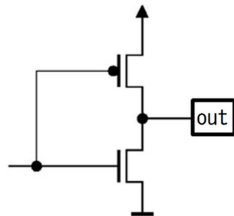
- *1: These output specifications are written before shipment. Do not change in Customers.
- *2: Absolute signal and UVW signal cannot be output at the same time.
- *3: Do not connect to unused signal lines.
- *4: The highest PWM resolution is only up to 14 bits.

External Dimension



Output Circuit

TTL(push pull)



Electrical Spec

Resolution	Absolute output		10 to 18 bit
	Incremental output	ABI UVW	1 to 10000 P/R 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})			120μA MAX
Pull-down high level input current(I _{IH})			120μA MAX
Insulation resistance			50MΩ DC 500V(0V⇔CASE)
Dielectric resistance			AC500V 1 minute
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			±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) ± (P/4) Phase: (P/4) ± (P/8)
I Accuracy (P= 1/(Pulse/Rev))			P ± (P/10)
UVW Accuracy			±2 °mechanical [Typ.]
System reaction time			4ms[Typ.] First ABI pulse detection upon power up
Incremental Output Frequency			1MHz MAX, Frequency = Velocity(RPM)x CPR/60

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

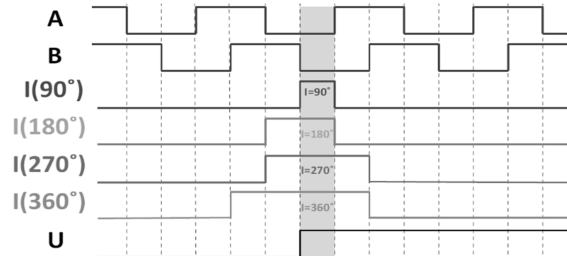
Connector: BM10B-SURS-TF (JST)

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

Wave Form

(Incremental Output)



[Note] Please contact our Sales for inquiries about the detail of products.