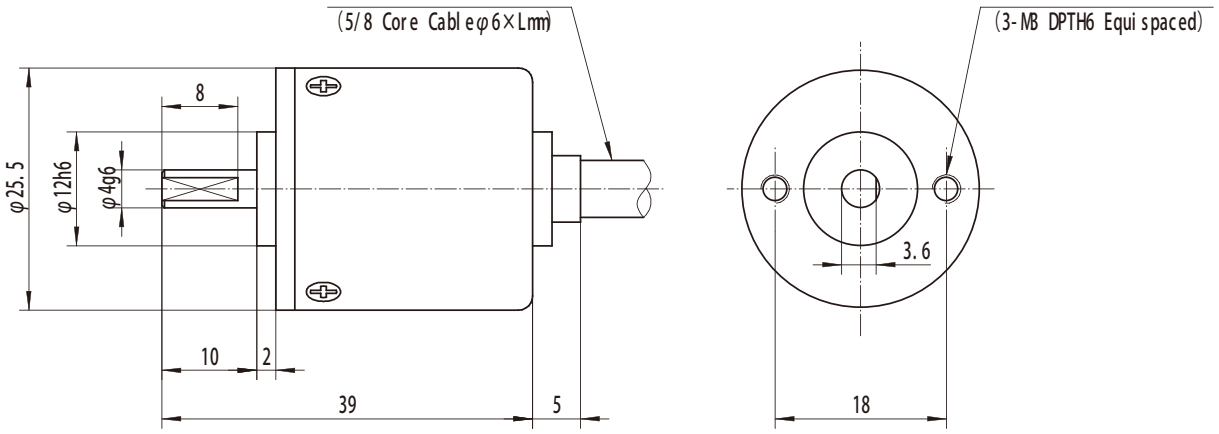
DNA
Drive & Acquisition Systems
www.driveandacquisition.co.za
Office: +27(0)11 894 1204
Technical: +27(0)82 898 9849

Product Selection Guide

SA25S
Applications & Features

Widely applied in automatic control and measurement.
A sensor for measuring the rotational angle and speed.
Small size, light weight, excellent performance.
Suitable for narrow space applications.
Resolution up to 1200 ppr.

Mechanical Drawing



Electrical Specifications

Output Type	Supply Voltage DC (V)	Current Consumption (mA)	Output Voltage (V)		Rise Time (ns)	Fall Time (ns)	Frequency Response (kHz)
			V_H	V_L			
E (Voltage)	5±0.25	≤80	>3.5	≤0.7	≤500	≤100	0-300
	8-26	≤120	>VCC-2.5	≤0.7	≤500	≤100	0-300
C (Open Colletor)	5±0.25	≤60	>VCC-2.5	≤0.7	≤500	≤100	0-300
	8-26						

Mechanical Specifications

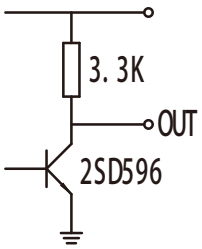
Max. Speed (r/min)	Start Torque (25℃) (N. M)	Max. Load on Shaft (N)		Moment of Inertia (kgm^2)	Weight (kg)
		Radial	Axial		
6000	$1*10^{-3}$	15	10	$4*10^{-6}$	≈0.07

Enviromental Specifications

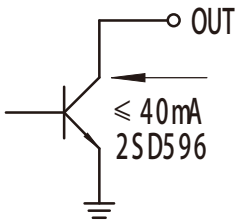
Operating Temp. (℃)	-20～+85	Impact Resistance (m/s^2)	50 (3 times on x,y,z direction, each time last for 6ms)
Storage Temp. (℃)	-30～+95	Anti-vibration (m/s^2)	20 (10 ～ 200Hz 2 hours on X,Y,Z direction)
Relative Humidity	35%～85%RH No Condensition	Protection Class	Common IP54

Output Circuits

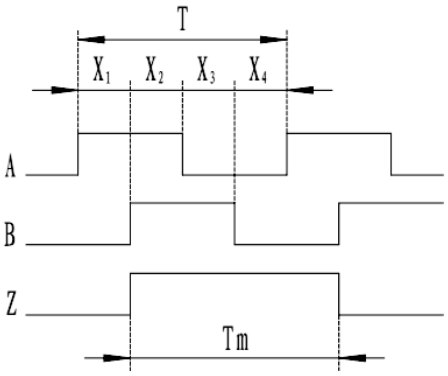
E（Voltage）



C（Open Collector）



Output Waveform



Wave Ratio ：X1+X2=0.5T±0.1T　X2+X3=0.5T±0.1T

Phase Different：Xn≥0.125T（n=1, 2, 3, 4）

Absolute Angle Error ：≤0.2T

Cycle Error ：≤0.05T

T=360°／N（N= lines count per revolution）

Width of Z signal

1、Tm=1T±0.5T　Tm=nT±0.1T（n≥2）

The phase relation of Z signal and A,B signal is not stipulated.

2、Tm=0.5T±0.25T　Tm=0.25T±0.125T

The rising edge of the z-channel signal is aligned with
the rising edge of the B-channel signal

Electrical Connections

Cable Color	Red	Black	Green	White	Yellow	Shield
E（Voltage） C（Open Collector）	Vcc	0V	A	B	Z	G

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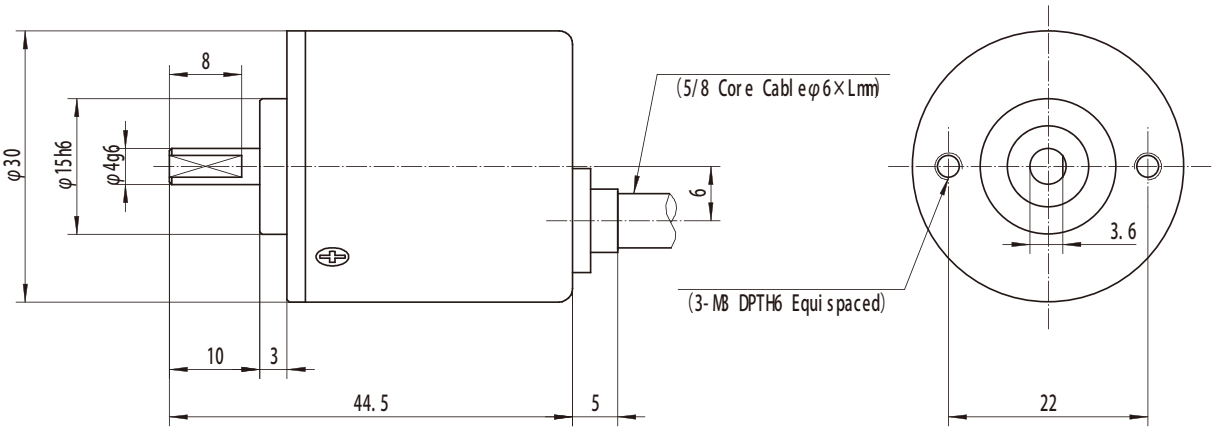
Product Selection Guide

SA30S
Applications & Features

Widely used in automatic control and measurement.
A sensor for measuring the rotational angle and speed.
Compact size, light weight, excellent performance.
Suitable for narrow space applications.
Resolution up to 1200 ppr.

Mechanical Drawing



Electrical Specifications

Output Type	Supply Voltage DC（V）	Current Consumption （mA）	Output Voltage （V）		Rise Time （ns）	Fall Time （ns）	Frequency Response （kHz）
			V_H	V_L			
E（Voltage）	5±0. 25	≤ 80	＞3. 5	≤0 . 7	≤5 00	≤1 00	0- 300
	8- 26	≤120	＞VCC-2. 5	≤0 . 7	≤5 00	≤1 00	0- 300
C（Open Colletor ）	5±0. 25	≤ 60	＞VCC-2. 5	≤0 . 7	≤5 00	≤1 00	0- 300
	8- 26						

Mechanical Specifications

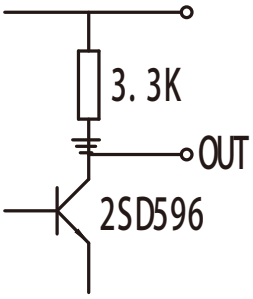
Max. Speed （r/min）	Start Torque(25 ℃） （N.M）	Max. Load on Shaft （N）		Moment of Inertia （kgm^2）	Weight （kg）
		Radial	Axial		
6000	$1*10^{-3}$	15	10	$5*10^{-8}$	≈0.09

Enviromental Specifications

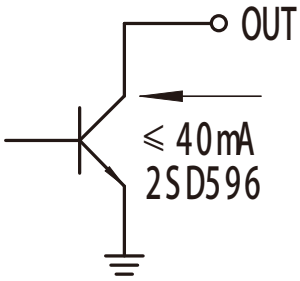
Operating Temp.（℃ ）	-20～+85	Impact Resistance （m/s^2）	50（3 times on x,y,z direction, each time last for 6ms ）
Storage Temp.（℃ ）	-30～+95	Anti-vibration （m/s^2）	20（10 ～ 200Hz 2 hours on X,Y,Z direction ）
Relative Humidity	35%～85%RH No Condensition	Protection Class	Common IP54

Output Circuits

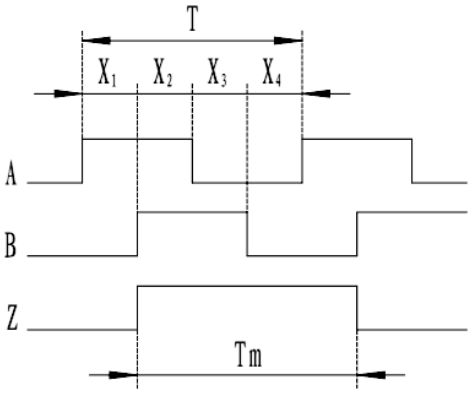
E（Voltage）



C（Open Collector）



Output Waveform



Wave Ratio ：X1+X2=0.5T±0.1T　X2+X3=0.5T±0.1T

Phase Different ：Xn≥0.125T（n=1, 2, 3, 4）

Absolute Angle Error ：≤0.2T

Cycle Error ：≤0.05T

T=360° / N（N= lines count per revolution ）

Width of Z signal

1、Tm=1T±0.5T　Tm=nT±0.1T（n≥2）

The phase relation of Z signal and A,B signal is not stipulated.

2、Tm=0.5T±0.25T　Tm=0.25T±0.125T

The rising edge of the z-channel signal is aligned with
the rising edge of the B-channel signal

Electrical Connections

Cable Color	Red	Black	Green	White	Yellow	Shield
E（Voltage） C（Open Collector）	Vcc	0V	A	B	Z	G

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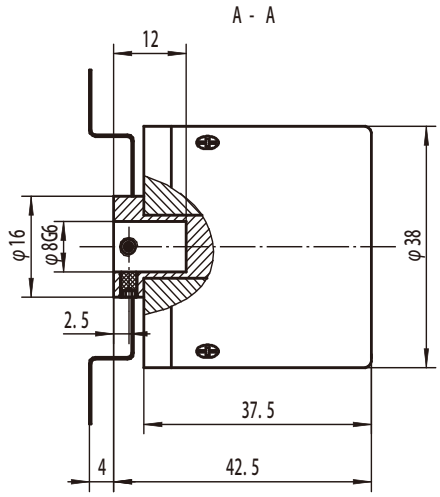
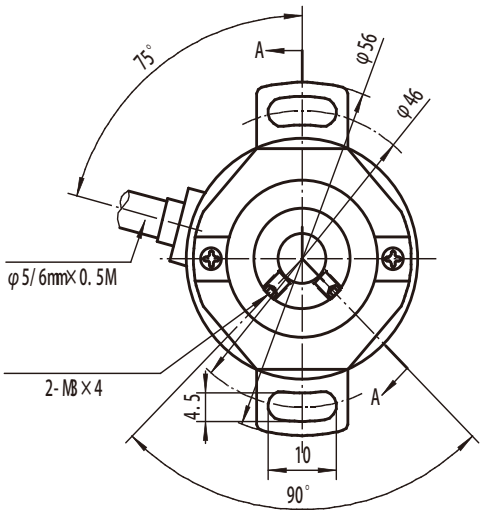
Product Selection Guide

SA38H
Applications & Features

SA38H is widely used to measure the speed and position of CNC machines such as embroidery machine.
Small outer diameter of 38mm, shaft hole 6/8mm optional.
Rugged construction, high reliability.
Strong anti-jamming performance.
Long service life.

Mechanical Drawing





Electrical Specifications

Output Type	Supply Voltage DC（V）	Current Consumption （m A）	Output Voltage （V）		Rise Time （ns）	Fall Time （ns）	Frequency Response （kHz）
			V_H	V_L			
E（Voltage ）	5±0. 25	≤ 80	＞3. 5	≤0 . 7	≤5 00	≤1 00	0- 300
	8- 26	≤1 20	＞VCC-2. 5	≤0 . 7	≤5 00	≤1 00	0- 300
	10-3 0						
F（Push-pull）	5±0. 25	≤ 80	＞3. 5	≤0 . 7	≤5 00	≤1 00	0- 300
	8- 26	≤1 20	＞VCC-2. 5	≤0 . 7	≤5 00	≤1 00	0- 300
	10-3 0						
C（Open Collector ）	5±0. 25	≤ 60	＞VCC-2. 5	≤0 . 7	≤5 00	≤1 00	0- 300
	8- 26						
	10-3 0						
L （Line Driver）	5±0. 25	≤1 00	＞3. 5	≤0 . 7	≤2 00	≤2 00	0- 300
A（Wide Voltage Line Driver）	8- 26	≤ 60	＞VCC-2. 5	≤0 . 7	≤5 00	≤1 00	0- 300
	10-3 0						

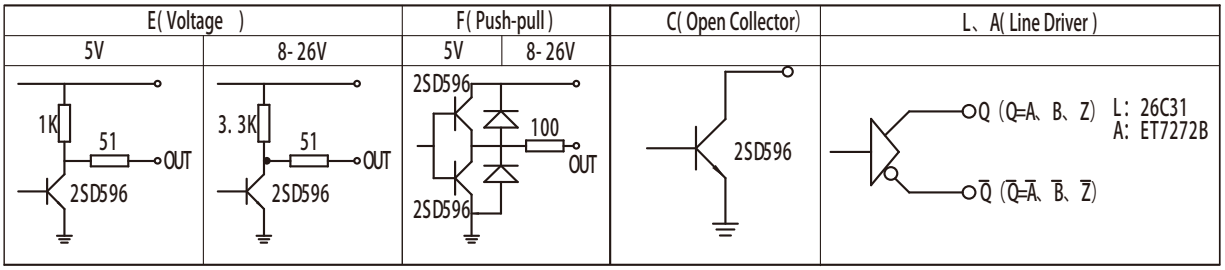
Mechanical Specifications

Max. Speed （r/min）	Start Torque（25 ℃） （N. M）	Max. Load on Shaft （ N ）		Moment of Inertia （kgm^2）	Weight （kg）
		Radial	Axial		
6000	$1*10^{-3}$	20	15	$4*10^{-6}$	≈0.135

Enviromental Specifications

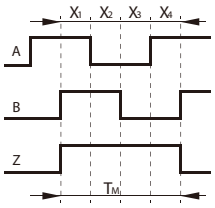
Operating Temp.（C ）	-20～+8 5	Impact Resistance （m/s^2）	50（ 3 times on x,y,z direction, each time last for 6ms ）
Storage Temp.（C ）	-30～+95	Anti-vibration （m/s^2）	20（10 ～ 200Hz 2 hours on X,Y,Z direction ）
Relative Humidity	35% ～85%RH No Condensition	Protection Class	Common IP54

Output Circuits

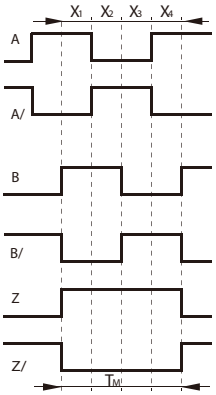


Note: C,F output is shorted to ground pretection diode

Output Waveform



C, E, F Output



L,A Output

Wave Ratio : X1+X2=0.5T±0.1T X2+X3=0.5T±0.1T

Phase Different : Xn≥0.125T (n=1,2,3,4)

Absolute Angle Error : ≤0.2T

Cycle Error : ≤0.05T

T=360° / N (N= lines count per revolution)

Width of Z signal

1、Tm=1T±0. 5T Tm=nT± 0.1 T (n≥ 2)

The phase relation of Z signal and A,B signal is not stipulated.

2、Tm=0.5T±0.25T Tm=0.25T± 0.125T

The rising edge of the Z-channel signal is aligned with the rising edge of the B-channel signal

Electrical Connections

Cable Color	Red	Black	Green	Brown	White	Gray	Yellow	Orange	Shield
E (Voltage) F (Push-pull) C (Open Collector)	Vcc	0 V	A		B		Z		G
L、A (Line Driver)	Vcc	0 V	A	A/	B	B/	Z	Z/	G

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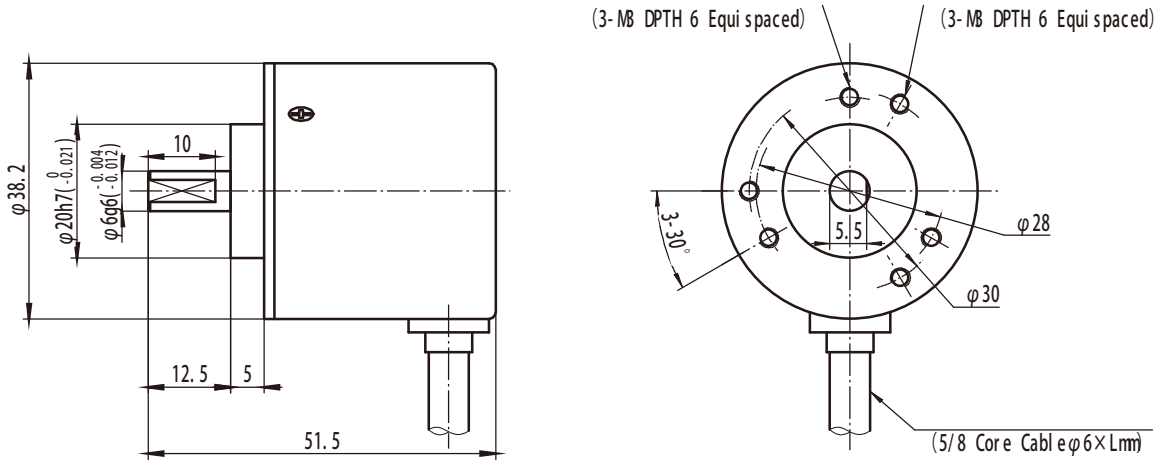
Product Selection Guide

SA38S
Applications & Features

Widely used in various industrial machinery control, especially in the printing and packaging industry.
Resolution up to 5000 pulses.
Small size, light weight and high precision.
Preferred higher quality and low cost product.

Mechanical Drawing



Electrical Specifications

Output Type	Supply Voltage DC（V）	Current Consumption （mA）	Output Voltage （V）		Rise Time （ns）	Fall Time （ns）	Frequency Response （kHz）
			V_H	V_L			
E（Voltage）	5±0.25	≤80	＞3.5	≤0.7	≤500	≤100	0-300
	8-26	≤120	＞VCC-2.5	≤0.7	≤500	≤100	0-300
	10-30						
F（Push-pull）	5±0.25	≤80	＞3.5	≤0.7	≤500	≤100	0-300
	8-26	≤120	＞VCC-2.5	≤0.7	≤500	≤100	0-300
	10-30						
C（Open Collector）	5±0.25	≤60	＞VCC-2.5	≤0.7	≤500	≤100	0-300
	8-26						
	10-30						
L(Line Driver)	5±0.25	≤100	＞3.5	≤0.7	≤200	≤200	0-300
A（Wide Voltage Line Driver）	8-26	≤60	＞VCC-2.5	≤0.7	≤500	≤100	0-300
	10-30						

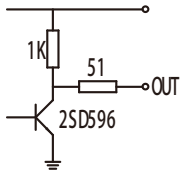
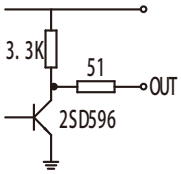
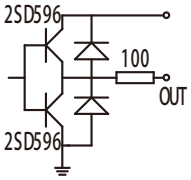
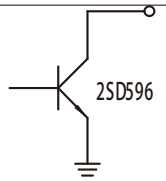
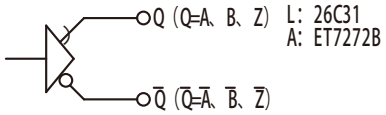
Mechanical Specifications

Max. Speed （r/min）	Start Torque（25℃） （N.M）	Max. Load on Shaft （N）		Moment of Inertia （kgm^2）	Weight （kg）
		Radial	Axial		
6000	$1*10^{-3}$	20	15	$4*10^{-6}$	≈0.316

Enviromental Specifications

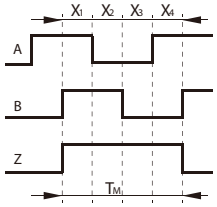
Operating Temp.（℃）	-20～+85	Impact Resistance （m/s^2）	50（3 times on x,y,z direction, each time last for 6ms）
Storage Temp.（℃）	-30～+95	Anti-vibration（m/s^2）	20（10～200Hz 2 hours on X,Y,Z direction）
Relative Humidity	35%～85%RH No Condensition	Protection Class	Common IP54

Output Circuits

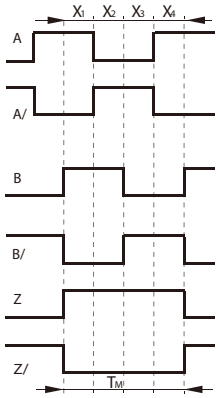
E(Voltage)		F(Push-pull)		C(Open Collector)	L、A(Line Driver)
5V	8- 26V	5V	8- 26V		
					

Note: C,F output is shorted to ground pretection diode

Output Waveform



C, E, F Output



L,A Output

Wave Ratio ： X1＋X2＝0.5T±0.1T　　X2+X3＝0.5T±0.1T

Phase Different ： Xn≥0.125T（n＝1,2,3,4）

Absolute Angle Error ： ≤0.2T

Cycle Error ： ≤0.05 T

T＝360° / N（N= lines count per revolution）

Width of Z signal

1、Tm=1T±0. 5T　Tm=nT± 0.1 T（n≥ 2）

The phase relation of Z signal and A,B signal is not stipulated.

2、Tm=0.5T±0.25T　Tm=0.25T± 0.125T

The rising edge of the Z-channel signal is aligned with the rising edge of the B-channel signal

Electrical Connections

Cable Color	Red	Black	Green	Brown	White	Gray	Yellow	Orange	Shield
E（Voltage） F（Push-pull） C（Open Collector）	Vcc	0 V	A		B		Z		G
L、A（Line Driver）	Vcc	0 V	A	A/	B	B/	Z	Z/	G

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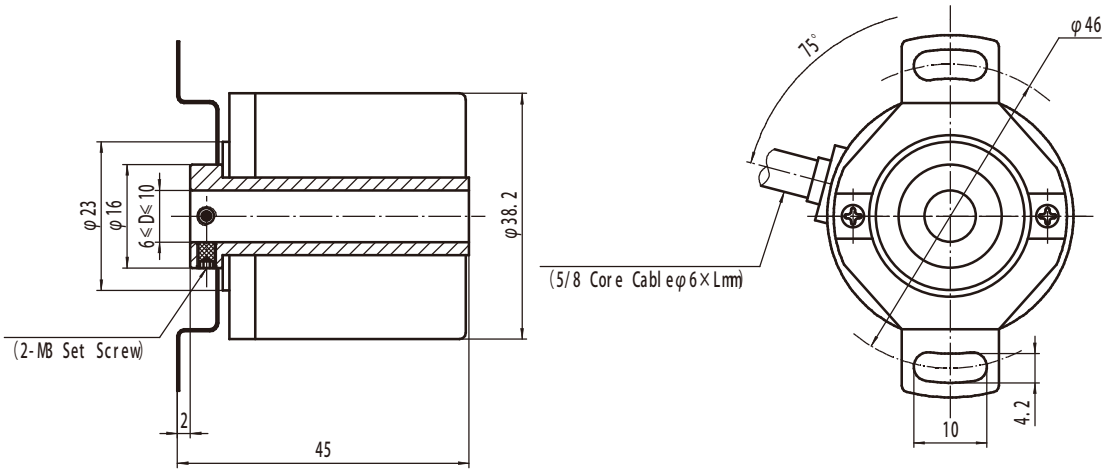
Product Selection Guide

SA38T
Applications & Features

SA38T is suitable for precision working environment.
Through-hole design between 6mm-8mm.
Resolution up to 5000 pulses.
Special requirements can be customized.
Optoelectronic devices with high reliability.
Long life, anti-interference ability, wide temperature range.

Mechanical Drawing



Electrical Specifications

Output Type	Supply Voltage DC (V)	Current Consumption (mA)	Output Voltage (V)		Rise Time (ns)	Fall Time (ns)	Frequency Response (kHz)
			V_H	V_L			
E (Voltage)	5±0.25	≤80	>3.5	≤0.7	≤500	≤100	0-300
	8-26	≤120	>VCC-2.5	≤0.7	≤500	≤100	0-300
	10-30						
F (Push-pull)	5±0.25	≤80	>3.5	≤0.7	≤500	≤100	0-300
	8-26	≤120	>VCC-2.5	≤0.7	≤500	≤100	0-300
	10-30						
C (Open Collector)	5±0.25	≤60	>VCC-2.5	≤0.7	≤500	≤100	0-300
	8-26						
	10-30						
L (Line Driver)	5±0.25	≤100	>3.5	≤0.7	≤200	≤200	0-300
A (Wide Voltage Line Driver)	8-26	≤60	>VCC-2.5	≤0.7	≤500	≤100	0-300
	10-30						

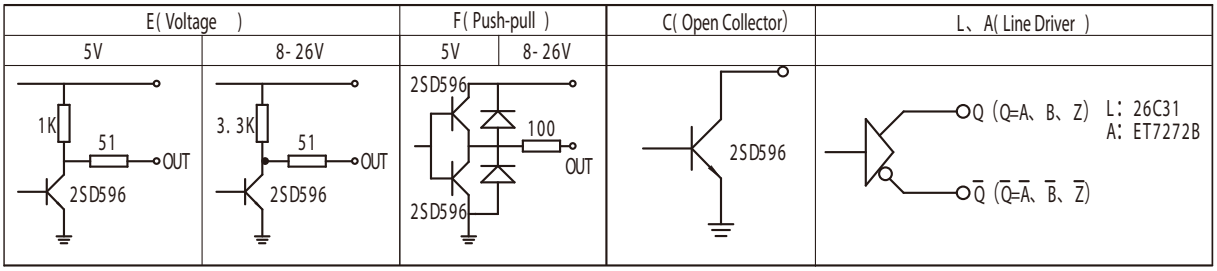
Mechanical Specifications

Max. Speed (r/min)	Start Torque(25 ℃) (N. M)	Max. Load on Shaft (N)		Moment of Inertia (kgm^2)	Weight (kg)
		Radial	Axial		
6000	$1*10^{-3}$	25	15	$4*10^{-6}$	≈0.135

Enviromental Specifications

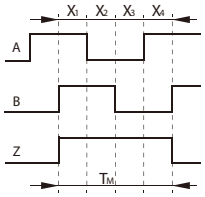
Operating Temp. (℃)	-20～+85	Impact Resistance (m/s^2)	50 (3 times on x,y,z direction, each time last for 6ms)
Storage Temp. (℃)	-30～+95	Anti-vibration (m/s^2)	20 (10～200Hz 2 hours on X,Y,Z direction)
Relative Humidity	35%～85%RH No Condensition	Protection Class	Common IP54

Output Circuits

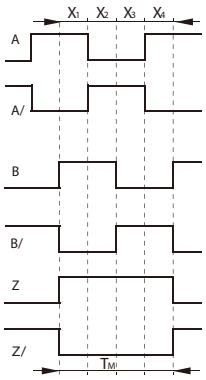


Note: C,F output is shorted to ground pretection diode

Output Waveform



C, E, F Output



L,A Output

Wave Ratio : X1+X2=0.5T±0.1T X2+X3=0.5T±0.1T

Phase Different : Xn≥0.125T (n=1,2,3,4)

Absolute Angle Error : ≤0.2T

Cycle Error : ≤0.05 T

T=360° / N (N= lines count per revolution)

Width of Z signal

1、Tm=1T±0. 5T Tm=nT± 0.1 T (n≥ 2)

The phase relation of Z signal and A,B signal is not stipulated.

2、Tm=0.5T±0.25T Tm=0.25T± 0.125T

The rising edge of the Z-channel signal is aligned with the rising edge of the B-channel signal

Electrical Connections

Cable Color	Red	Black	Green	Brown	White	Gray	Yellow	Orange	Shield
E (Voltage) F (Push-pull) C (Open Collector)	Vcc	0 V	A		B		Z		G
L、A (Line Driver)	Vcc	0 V	A	A/	B	B/	Z	Z/	G

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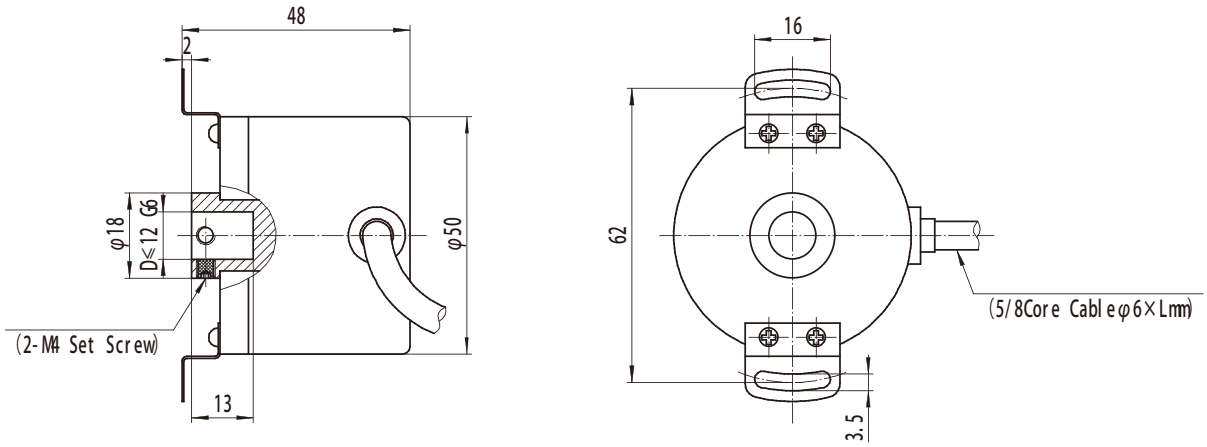
Technical: +27(0)82 898 9849

Product Selection Guide

SA50H
Applications & Features

Widely applied in different automatic control applications.
The outer diameter of the product is 50mm.
End hollow shaft less than 12mm available.
Resolutions up to 6000 ppr.
Special requirements can be customized.
High reliability optoelectronic componets adopted.
Long life, anti-interference ability, wide temperature range.

Mechanical Drawing



Electrical Specifications

Output Type	Supply Voltage DC（V）	Current Consumption（mA）	Output Voltage （V）		Rise Time（ns）	Fall Time（ns）	Frequency Response（kHz）
			V_H	V_L			
E（Voltage）	5±0. 25	≤ 80	＞3. 5	≤0 . 7	≤5 00	≤1 00	0- 300
	8- 26	≤1 20	＞VCC-2. 5	≤0 . 7	≤5 00	≤1 00	0- 300
	10-3 0						
F（Push-pull）	5±0. 25	≤ 80	＞3. 5	≤0 . 7	≤5 00	≤1 00	0- 300
	8- 26	≤1 20	＞VCC-2. 5	≤0 . 7	≤5 00	≤1 00	0- 300
	10-3 0						
C（Open Collector ）	5±0. 25	≤ 60	＞VCC-2. 5	≤0 . 7	≤5 00	≤1 00	0- 300
	8- 26						
	10-3 0						
L（Line Driver ）	5±0. 25	≤1 00	＞3. 5	≤0 . 7	≤2 00	≤2 00	0- 300
A（Wide Voltage Line Driver）	8- 26	≤ 60	＞VCC-2. 5	≤0 . 7	≤5 00	≤1 00	0- 300
	10-3 0						

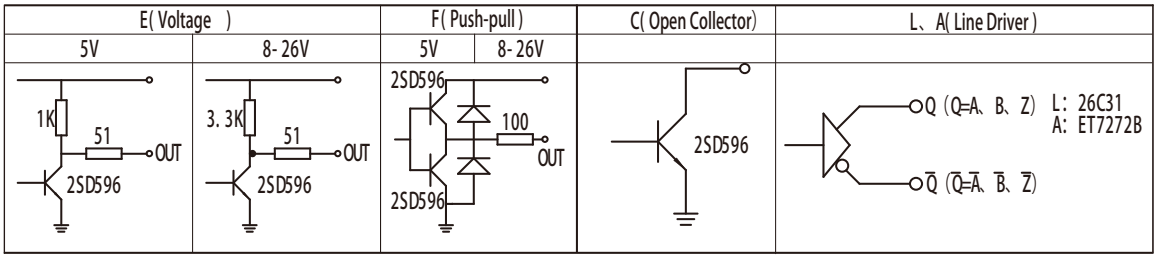
Mechanical Specifications

Max. Speed（r/min）	Start Torque（25 ℃）（N. M）	Max. Load on Shaft （ N ）		Moment of Inertia（kgm^2）	Weight（kg）
		Radial	Axial		
6000	$1*10^{-3}$	25	20	$4*10^{-6}$	≈0.28

Enviromental Specifications

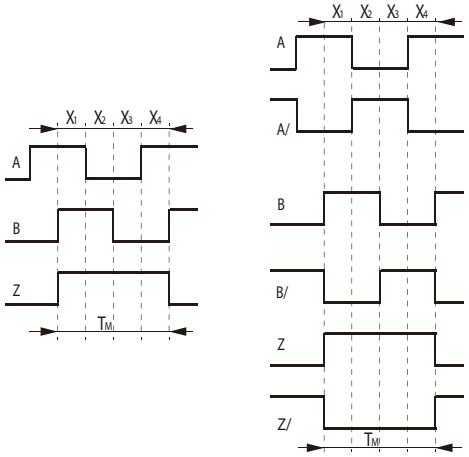
Operating Temp.（℃）	-20 ～+85	Impact Resistance（m/s^2）	50（ 3 times on x,y,z direction, each time last for 6ms ）
Storage Temp.（℃）	-30 ～ +95	Anti-vibration（m/s^2）	20（10 ～200Hz 2 hours on X,Y,Z direction ）
Relative Humidity	35% ～ 85%RH No Condensition	Protection Class	Common IP54

Output Circuits



Note: C,F output is shorted to ground pretection diode

Output Waveform



C, E, F Output L,A Output

Wave Ratio : X1+X2=0.5T±0.1T X2+X3=0.5T±0.1T

Phase Different : Xn≥0.125T (n=1,2,3,4)

Absolute Angle Error : ≤0.2T

Cycle Error : ≤0.05T

T=360° / N (N= lines count per revolution)

Width of Z signal

1、Tm=1T±0. 5T Tm=nT± 0.1 T (n≥ 2)

The phase relation of Z signal and A,B signal is not stipulated.

2、Tm=0.5T±0.25T Tm=0.25T± 0.125T

The rising edge of the Z-channel signal is aligned with the rising edge of the B-channel signal

Electrical Connections

Cable Color	Red	Black	Green	Brown	White	Gray	Yellow	Orange	Shield
E (Voltage) F (Push-pull) C (Open Collector)	Vcc	0 V	A		B		Z		G
L、A (Line Driver)	Vcc	0 V	A	A/	B	B/	Z	Z/	G

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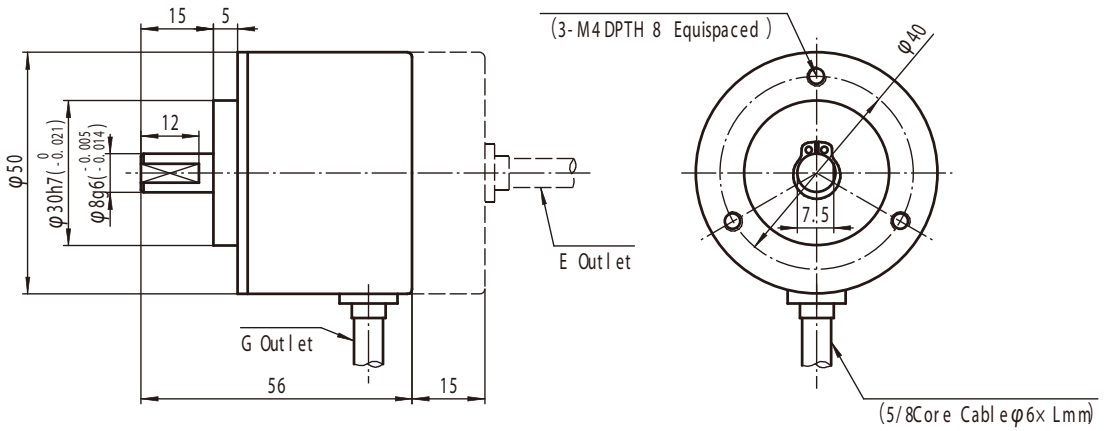
Product Selection Guide

SA50S
Applications & Features

Widely used in various industrial machinery control,especially in the printing and packaging industry.
Resolution up to 6000 pulses.
Small size, light weight and high precision.
Longer shaft length optional, suitable for various application environment.
High cost-effective performance products.

Mechanical Drawing



Electrical Specifications

Output Type	Supply Voltage DC (V)	Current Consumption (mA)	Output Voltage (V)		Rise Time (ns)	Fall Time (ns)	Frequency Response (kHz)
			V_H	V_L			
E (Voltage)	5±0.25	≤80	>3.5	≤0.7	≤500	≤100	0-300
	8-26	≤120	>VCC-2.5	≤0.7	≤500	≤100	0-300
	10-30						
F (Push-pull)	5±0.25	≤80	>3.5	≤0.7	≤500	≤100	0-300
	8-26	≤120	>VCC-2.5	≤0.7	≤500	≤100	0-300
	10-30						
C (Open Collector)	5±0.25	≤60	>VCC-2.5	≤0.7	≤500	≤100	0-300
	8-26						
	10-30						
L (Line Driver)	5±0.25	≤100	>3.5	≤0.7	≤200	≤200	0-300
A (Wide Voltage Line Driver)	8-26	≤60	>VCC-2.5	≤0.7	≤500	≤100	0-300
	10-30						

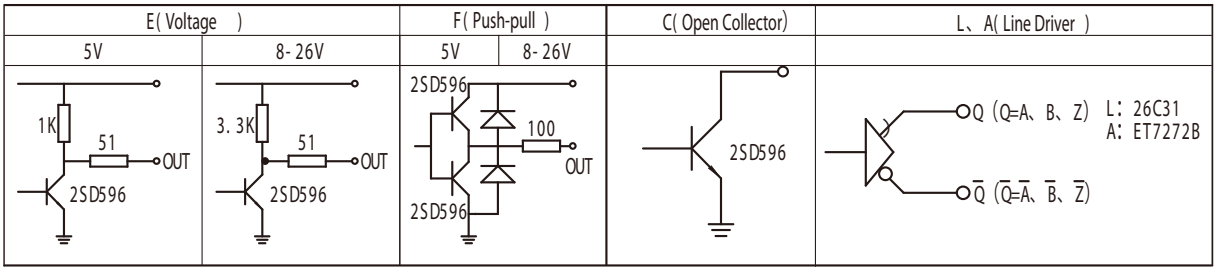
Mechanical Specifications

Max. Speed (r/min)	Start Torque(25 ℃) (N. M)	Max. Load on Shaft (N)		Moment of Inertia (kgm^2)	Weight (kg)
		Radial	Axial		
6000	$1*10^{-3}$	25	20	$4*10^{-6}$	≈0.3

Enviromental Specifications

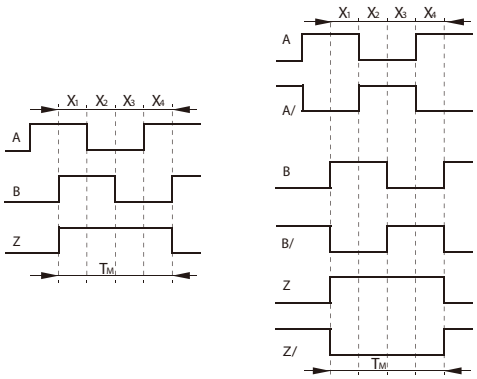
Operating Temp. (℃)	-20～+85	Impact Resistance (m/s^2)	50 (3 times on x,y,z direction, each time last for 6ms)
Storage Temp. (℃)	-30～+95	Anti-vibration (m/s^2)	20 (10～200Hz 2 hours on X,Y,Z direction)
Relative Humidity	35%～85%RH No Condensition	Protection Class	Common IP54

Output Circuits



Note: C,F output is shorted to ground pretection diode

Output Waveform



C, E, F Output　　L,A Output

Wave Ratio ： X1＋X2＝0.5T±0.1T　　X2+X3＝0.5T±0.1T

Phase Different ： Xn≥0.125T（n＝1,2,3,4）

Absolute Angle Error ： ≤0.2T

Cycle Error ： ≤0.05 T

T＝360° / N（N= lines count per revolution）

Width of Z signal

1、Tm＝1T±0. 5T　Tm＝nT± 0.1 T（n≥ 2）

The phase relation of Z signal and A,B signal is not stipulated.

2、Tm=0.5T±0.25T　Tm=0.25T± 0.125T

The rising edge of the Z-channel signal is aligned with the rising edge of the B-channel signal

Electrical Connections

Cable Color	Red	Black	Green	Brown	White	Gray	Yellow	Orange	Shield
E（Voltage） F（Push-pull） C（Open Collector）	Vcc	0 V	A		B		Z		G
L、A（Line Driver）	Vcc	0 V	A	A/	B	B/	Z	Z/	G

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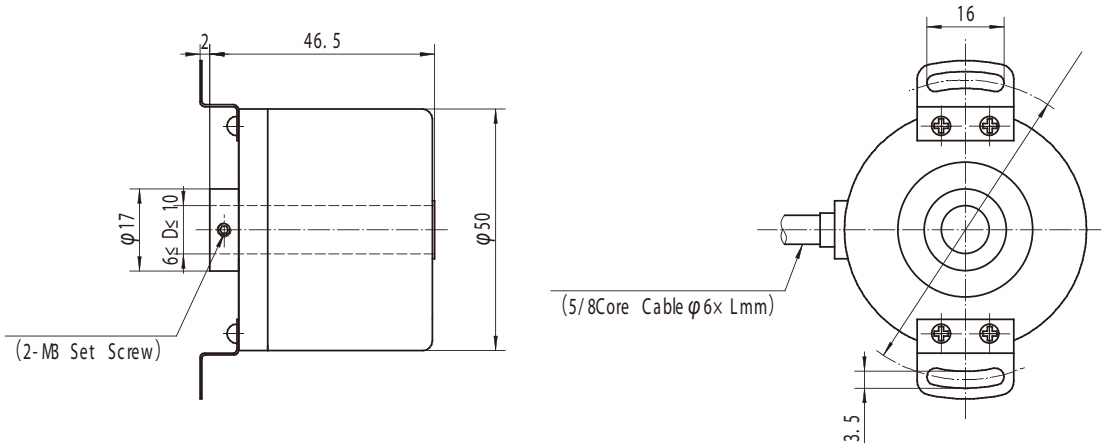
Product Selection Guide

SA50T
Applications & Features

Widely used in automatic control,
automatic measurement, remote control,
computer technology and other industries.
Resolutions up to 6000 pulses.
Special requirements can be customized.
Optoelectronic devices with high reliability,
long life, anti-interference ability.
Wide temperature range.

Mechanical Drawing



Electrical Specifications

Output Type	Supply Voltage DC (V)	Current Consumption (mA)	Output Voltage (V)		Rise Time (ns)	Fall Time (ns)	Frequency Response (kHz)
			V_H	V_L			
E (Voltage)	5±0.25	≤80	>3.5	≤0.7	≤500	≤100	0-300
	8-26	≤120	>VCC-2.5	≤0.7	≤500	≤100	0-300
	10-30						
F (Push-pull)	5±0.25	≤80	>3.5	≤0.7	≤500	≤100	0-300
	8-26	≤120	>VCC-2.5	≤0.7	≤500	≤100	0-300
	10-30						
C (Open Collector)	5±0.25	≤60	>VCC-2.5	≤0.7	≤500	≤100	0-300
	8-26						
	10-30						
L (Line Driver)	5±0.25	≤100	>3.5	≤0.7	≤200	≤200	0-300
A (Wide Voltage Line Driver)	8-26	≤60	>VCC-2.5	≤0.7	≤500	≤100	0-300
	10-30						

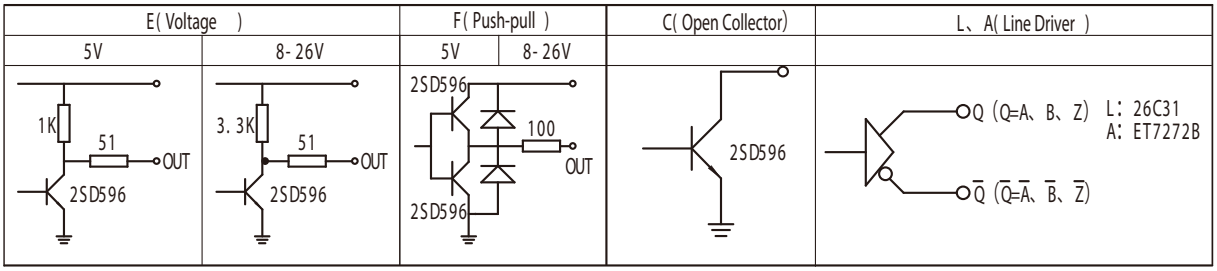
Mechanical Specifications

Max. Speed (r/min)	Start Torque(25 ℃) (N. M)	Max. Load on Shaft (N)		Moment of Inertia (kgm^2)	Weight (kg)
		Radial	Axial		
6000	$1*10^{-3}$	25	20	$4*10^{-6}$	≈0.28

Enviromental Specifications

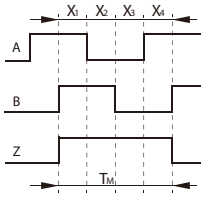
Operating Temp. (℃)	-20～+85	Impact Resistance (m/s^2)	50 (3 times on x,y,z direction, each time last for 6ms)
Storage Temp. (℃)	-30～+95	Anti-vibration (m/s^2)	20 (10～200Hz 2 hours on X,Y,Z direction)
Relative Humidity	35%～85%RH No Condensition	Protection Class	Common IP54

Output Circuits

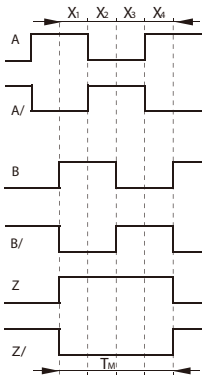


Note: C,F output is shorted to ground pretection diode

Output Waveform



C, E, F Output



L,A Output

Wave Ratio : X1+X2=0.5T±0.1T X2+X3=0.5T±0.1T

Phase Different : Xn≥0.125T (n=1,2,3,4)

Absolute Angle Error : ≤0.2T

Cycle Error : ≤0.05 T

T=360° / N (N= lines count per revolution)

Width of Z signal

1、Tm=1T±0. 5T Tm=nT± 0.1 T (n≥ 2)

The phase relation of Z signal and A,B signal is not stipulated.

2、Tm=0.5T±0.25T Tm=0.25T± 0.125T

The rising edge of the Z-channel signal is aligned with the rising edge of the B-channel signal

Electrical Connections

Cable Color	Red	Black	Green	Brown	White	Gray	Yellow	Orange	Shield
E (Voltage) F (Push-pull) C (Open Collector)	Vcc	0 V	A		B		Z		G
L、A (Line Driver)	Vcc	0 V	A	A/	B	B/	Z	Z/	G

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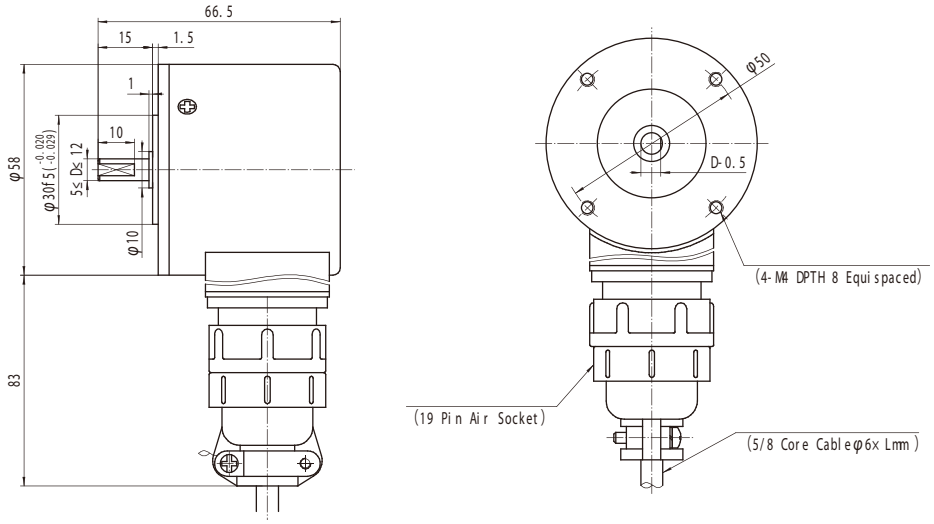
Product Selection Guide

SA58.2S
Applications & Features

Solid shaft encoder with OD 58mm.
Widely used in mechanical and optical light industry.
Mutiple output options are available.
Resolutions up to 6000ppr.
Customer requirements can be customized.
Optoelectronic components with high reliability and anti-interference ability adopted.

Mechanical Drawing



Electrical Specifications

Output Type	Supply Voltage DC（V）	Current Consumption（mA）	Output Voltage （V）		Rise Time（ns）	Fall Time（ns）	Frequency Response（kHz）
			V_H	V_L			
E（Voltage ）	5±0. 25	≤ 80	＞3. 5	≤0 . 7	≤5 00	≤1 00	0- 300
	8- 26	≤1 20	＞VCC-2. 5	≤0 . 7	≤5 00	≤1 00	0- 300
	10-3 0						
F（Push-pull）	5±0. 25	≤ 80	＞3. 5	≤0 . 7	≤5 00	≤1 00	0- 300
	8- 26	≤1 20	＞VCC-2. 5	≤0 . 7	≤5 00	≤1 00	0- 300
	10-3 0						
C（Open Collector ）	5±0. 25	≤ 60	＞VCC-2. 5	≤0 . 7	≤5 00	≤1 00	0- 300
	8- 26						
	10-3 0						
L（Line Driver）	5±0. 25	≤1 00	＞3. 5	≤0 . 7	≤2 00	≤2 00	0- 300
A（Wide Voltage Line Driver ）	8- 26	≤ 60	＞VCC-2. 5	≤0 . 7	≤5 00	≤1 00	0- 300
	10-3 0						

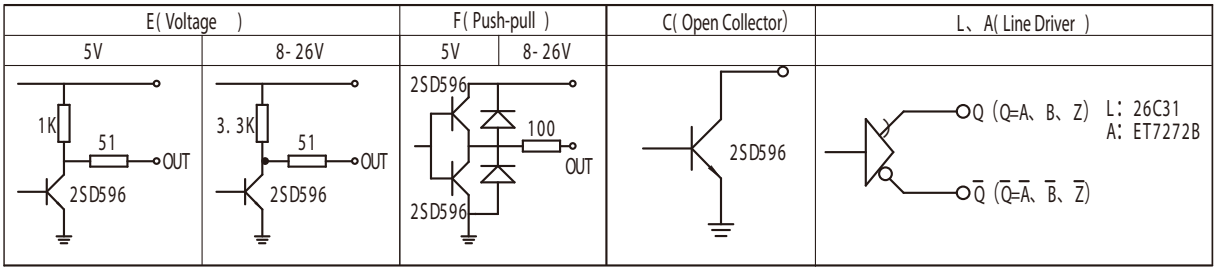
Mechanical Specifications

Max. Speed（r/min）	Start Torque（25℃ ）（N. M）	Max. Load on Shaft （ N ）		Moment of Inertia（kgm^2）	Weight（kg）
		Radial	Axial		
6000	$1*10^{-3}$	30	20	$4*10^{-6}$	≈0.285

Enviromental Specifications

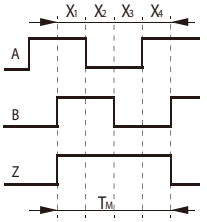
Operating Temp.（℃）	-20 ～+85	Impact Resistance（m/s^2）	50（ 3 times on x,y,z direction, each time last for 6ms ）
Storage Temp.（℃）	-30 ～ +95	Anti-vibration（m/s^2）	20（10 ～200Hz 2 hours on X,Y,Z direction ）
Relative Humidity	35% ～ 85%RH No Condensition	Protection Class	Common IP54

Output Circuits

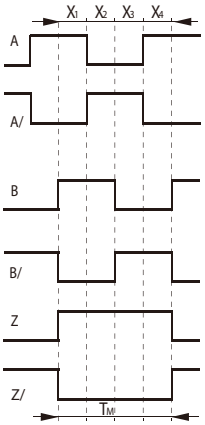


Note: C,F output is shorted to ground pretection diode

Output Waveform



C, E, F Output



L,A Output

Wave Ratio : X1+X2=0.5T±0.1T X2+X3=0.5T±0.1T

Phase Different : Xn≥0.125T (n=1,2,3,4)

Absolute Angle Error : ≤0.2T

Cycle Error : ≤0.05T

T=360° / N (N= lines count per revolution)

Width of Z signal

1、Tm=1T±0. 5T Tm=nT± 0.1 T (n≥ 2)

The phase relation of Z signal and A,B signal is not stipulated.

2、Tm=0.5T±0.25T Tm=0.25T± 0.125T

The rising edge of the Z-channel signal is aligned with the rising edge of the B-channel signal

Electrical Connections

Cable Color	Red	Black	Green	Brown	White	Gray	Yellow	Orange	Shield
E (Voltage) F (Push-pull) C (Open Collector)	Vcc	0 V	A		B		Z		G
L、A (Line Driver)	Vcc	0 V	A	A/	B	B/	Z	Z/	G

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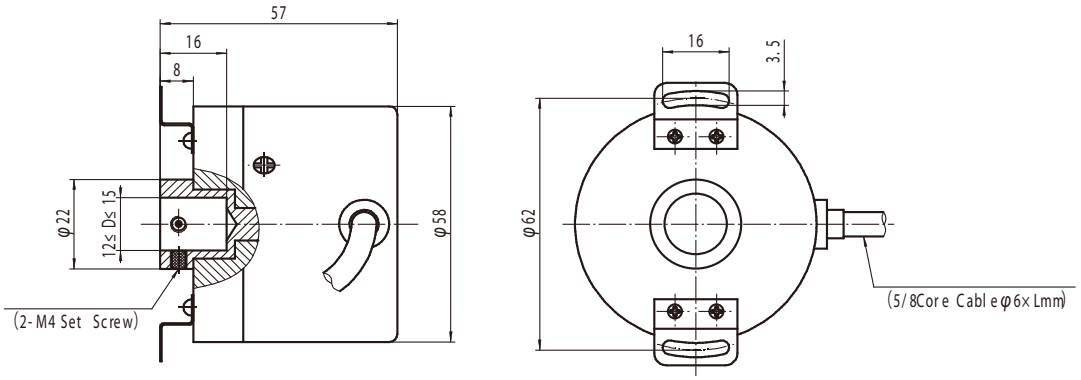
Product Selection Guide

SA58H
Applications & Features

End hollow shaft encoder with OD 58mm.
Widely used in mechanical and optical light industry.
Mutiple output options are available.
Resolutions up to 6000ppr.
Customer requirements can be customized.
Optoelectronic components with high reliability and
anti-interference ability adopted.

Mechanical Drawing



Electrical Specifications

Output Type	Supply Voltage DC（V）	Current Consumption （mA）	Output Voltage （V）		Rise Time （ns）	Fall Time （ns）	Frequency Response （kHz）
			V_H	V_L			
E（Voltage ）	5±0. 25	≤ 80	＞3. 5	≤0 . 7	≤5 00	≤1 00	0- 300
	8- 26	≤120	＞VCC-2. 5	≤0 . 7	≤5 00	≤1 00	0- 300
	10-30						
F（Push-pull ）	5±0. 25	≤ 80	＞3. 5	≤0 . 7	≤5 00	≤1 00	0- 300
	8- 26	≤120	＞VCC-2. 5	≤0 . 7	≤5 00	≤1 00	0- 300
	10-30						
C（Open Collector ）	5±0. 25	≤ 60	＞VCC-2. 5	≤0 . 7	≤5 00	≤1 00	0- 300
	8- 26						
	10-30						
L（Line Driver）	5±0. 25	≤1 00	＞3. 5	≤0 . 7	≤2 00	≤2 00	0- 300
A（Wide Voltage Line Driver ）	8- 26	≤ 60	＞VCC-2. 5	≤0 . 7	≤5 00	≤1 00	0- 300
	10-30						

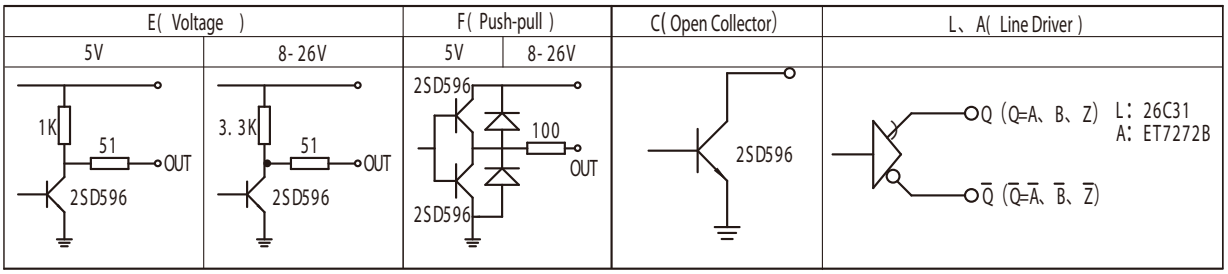
Mechanical Specifications

Max. Speed （r/m in）	Start Torque（25 ℃） （N. M）	Max. Load on Shaft （ N ）		Moment of Inertia （kgm^2）	Weight （kg）
		Radial	Axial		
6000	$1*10^{-3}$	30	20	$4*10^{-6}$	≈0.28

Enviromental Specifications

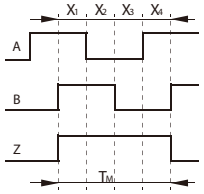
Operating Temp.（℃）	-20 ～+85	Impact Resistance （m/s^2）	50（ 3 times on x,y,z direction, each time last for 6ms ）
Storage Temp.（℃）	-30 ～ +95	Anti-vibration（m/s^2）	20（10 ～200Hz 2 hours on X,Y,Z direction ）
Relative Humidity	35% ～ 85%RH No Condensition	Protection Class	Common IP54

Output Circuits

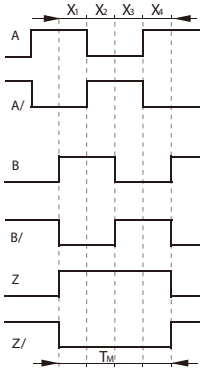


Note: C,F output is shorted to ground pretection diode

Output Waveform



C, E, F Output



L,A Output

Wave Ratio : X1+X2=0.5T±0.1T X2+X3=0.5T±0.1T

Phase Different : Xn≥0.125T (n=1,2,3,4)

Absolute Angle Error : ≤0.2T

Cycle Error : ≤0.05 T

T=360° / N (N= lines count per revolution)

Width of Z signal

1、Tm=1T±0. 5T Tm=nT± 0.1 T (n≥ 2)

The phase relation of Z signal and A,B signal is not stipulated.

2、Tm=0.5T±0.25T Tm=0.25T± 0.125T

The rising edge of the Z-channel signal is aligned with the rising edge of the B-channel signal

Electrical Connections

Cable Color	Red	Black	Green	Brown	White	Gray	Yellow	Orange	Shield
E (Voltage) F (Push-pull) C (Open Collector)	Vcc	0 V	A		B		Z		G
L、A (Line Driver)	Vcc	0 V	A	A/	B	B/	Z	Z/	G

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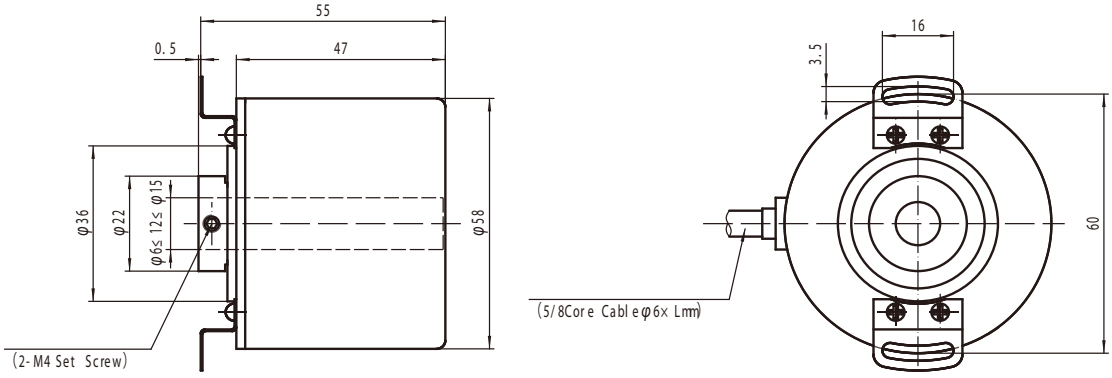
Product Selection Guide

SA58T
Applications & Features

Through hollow shaft encoder with OD 58mm.
Widely used in mechanical and optical light industry.
Mutiple output options are available.
Resolutions up to 6000ppr.
Customer requirements can be customized.
Optoelectronic components with high reliability and anti-interference ability adopted.

Mechanical Drawing



Electrical Specifications

Output Type	Supply Voltage DC (V)	Current Consumption (mA)	Output Voltage (V)		Rise Time (ns)	Fall Time (ns)	Frequency Response (kHz)
			V_H	V_L			
E (Voltage)	5±0.25	≤80	>3.5	≤0.7	≤500	≤100	0-300
	8-26	≤120	>VCC-2.5	≤0.7	≤500	≤100	0-300
	10-30						
F (Push-pull)	5±0.25	≤80	>3.5	≤0.7	≤500	≤100	0-300
	8-26	≤120	>VCC-2.5	≤0.7	≤500	≤100	0-300
	10-30						
C (Open Collector)	5±0.25	≤60	>VCC-2.5	≤0.7	≤500	≤100	0-300
	8-26						
	10-30						
L (Line Driver)	5±0.25	≤100	>3.5	≤0.7	≤200	≤200	0-300
A (Wide Voltage Line Driver)	8-26	≤60	>VCC-2.5	≤0.7	≤500	≤100	0-300
	10-30						

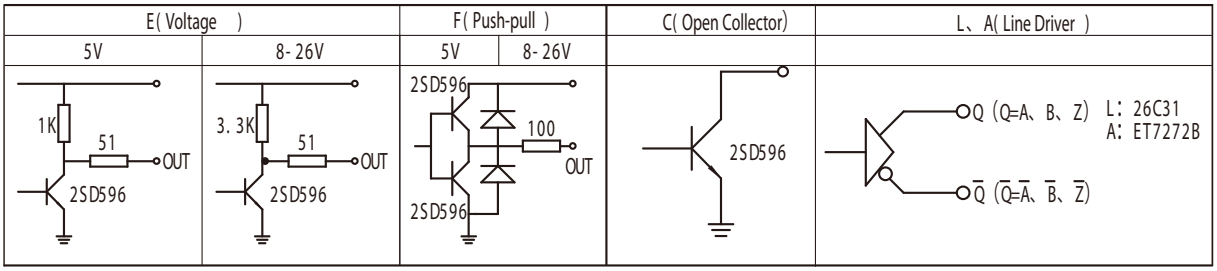
Mechanical Specifications

Max. Speed (r/min)	Start Torque(25 ℃) (N. M)	Max. Load on Shaft (N)		Moment of Inertia (kgm^2)	Weight (kg)
		Radial	Axial		
6000	$1*10^{-3}$	30	20	$4*10^{-6}$	≈0.33

Enviromental Specifications

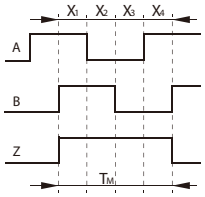
Operating Temp. (℃)	-20～+85	Impact Resistance (m/s^2)	50 (3 times on x,y,z direction, each time last for 6ms)
Storage Temp. (℃)	-30～+95	Anti-vibration (m/s^2)	20 (10～200Hz 2 hours on X,Y,Z direction)
Relative Humidity	35%～85%RH No Condensition	Protection Class	Common IP54

Output Circuits

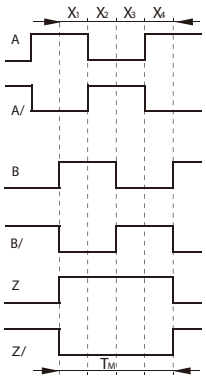


Note: C,F output is shorted to ground pretection diode

Output Waveform



C, E, F Output



L,A Output

Wave Ratio : X1+X2=0.5T±0.1T X2+X3=0.5T±0.1T

Phase Different : Xn≥0.125T (n=1,2,3,4)

Absolute Angle Error : ≤0.2T

Cycle Error : ≤0.05 T

T=360° / N (N= lines count per revolution)

Width of Z signal

1、Tm=1T±0. 5T Tm=nT± 0.1 T (n≥ 2)

The phase relation of Z signal and A,B signal is not stipulated.

2、Tm=0.5T±0.25T Tm=0.25T± 0.125T

The rising edge of the Z-channel signal is aligned with the rising edge of the B-channel signal

Electrical Connections

Cable Color	Red	Black	Green	Brown	White	Gray	Yellow	Orange	Shield
E (Voltage) F (Push-pull) C (Open Collector)	Vcc	0 V	A		B		Z		G
L、A (Line Driver)	Vcc	0 V	A	A/	B	B/	Z	Z/	G

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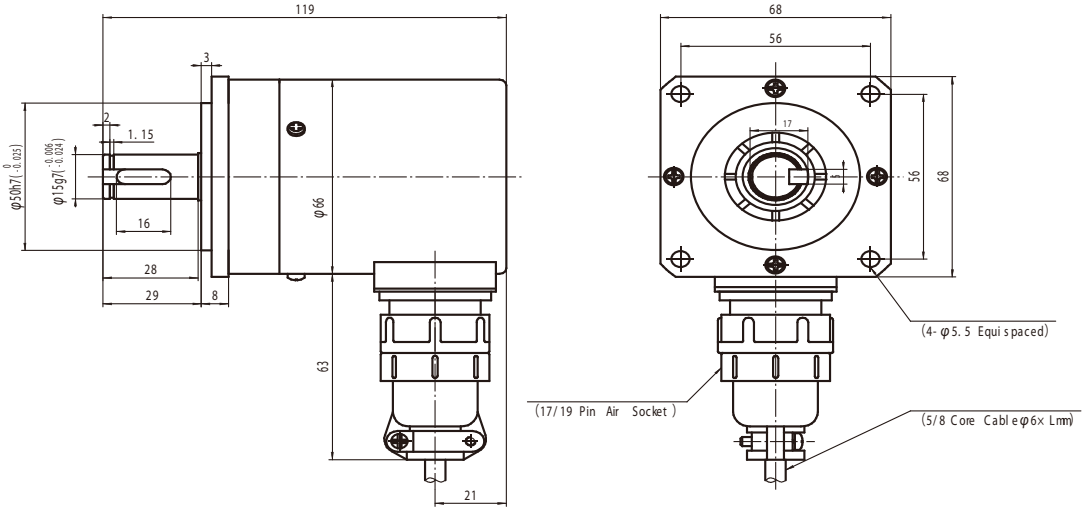
Product Selection Guide

SA66S15
Applications & Features

Heavy duty 15mm solid shaft encoder, OD66mm.
Widely applied in CNC machine tools.
Rugged construction with high axial and radial load.
Standard flange combines synchronous flange and clampling flange.
A variety of output forms for customer choice.
Competible with a variety of receivers and counters.
High cost-effective product.

Mechanical Drawing



Electrical Specifications

Output Type	Supply Voltage DC (V)	Current Consumption (mA)	Output Voltage (V)		Rise Time (ns)	Fall Time (ns)	Frequency Response (kHz)
			V_H	V_L			
E (Voltage)	5±0.25	≤80	>3.5	≤0.7	≤500	≤100	0-300
	8-26	≤120	>VCC-2.5	≤0.7	≤500	≤100	0-300
	10-30						
F (Push-pull)	5±0.25	≤80	>3.5	≤0.7	≤500	≤100	0-300
	8-26	≤120	>VCC-2.5	≤0.7	≤500	≤100	0-300
	10-30						
C (Open Collector)	5±0.25	≤60	>VCC-2.5	≤0.7	≤500	≤100	0-300
	8-26						
	10-30						
L (Line Driver)	5±0.25	≤100	>3.5	≤0.7	≤200	≤200	0-300
A (Wide Voltage Line Driver)	8-26	≤60	>VCC-2.5	≤0.7	≤500	≤100	0-300
	10-30						

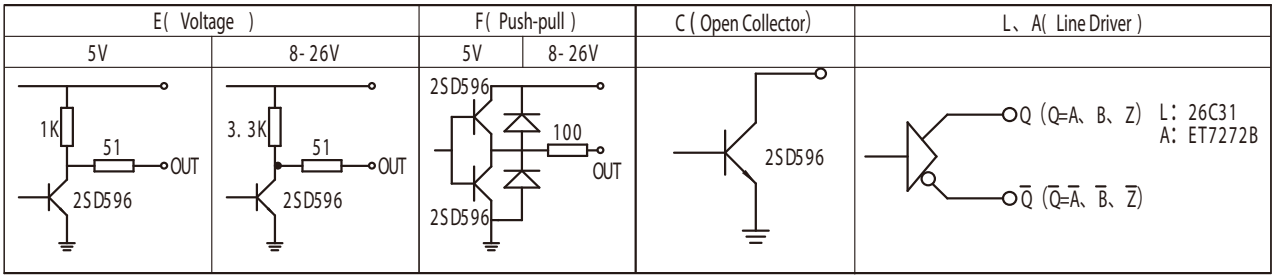
Mechanical Specifications

Max. Speed (r/min)	Start Torque (25 ℃) (N. M)	Max. Load on Shaft (N)		Moment of Inertia (kgm^2)	Weight (kg)
		Radial	Axial		
6000	$1*10^{-3}$	40	30	$4*10^{-6}$	≈0.725

Enviromental Specifications

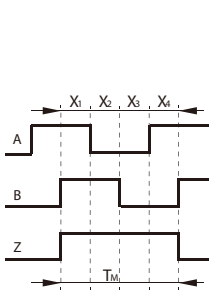
Operating Temp. (℃)	-20 ~ +85	Impact Resistance (m/s^2)	50 (3 times on x,y,z direction, each time last for 6ms)
Storage Temp. (℃)	-30 ~ +95	Anti-vibration (m/s^2)	20 (10 ~ 200Hz 2 hours on X,Y,Z direction)
Relative Humidity	35% ~ 85%RH No Condensition	Protection Class	Common IP54

Output Circuits

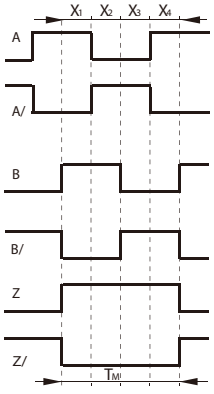


Note: C,F output is shorted to ground pretection diode

Output Waveform



C, E, F Output



L,A Output

Wave Ratio : X1+X2=0.5T±0.1T X2+X3=0.5T±0.1T

Phase Different : Xn≥0.125T (n=1,2,3,4)

Absolute Angle Error : ≤0.2T

Cycle Error : ≤0.05 T

T=360° / N (N= lines count per revolution)

Width of Z signal

1、Tm=1T±0. 5T Tm=nT± 0.1 T (n≥ 2)

The phase relation of Z signal and A,B signal is not stipulated.

2、Tm=0.5T±0.25T Tm=0.25T± 0.125T

The rising edge of the Z-channel signal is aligned with the rising edge of the B-channel signal

Electrical Connections

Cable Color	Red	Black	Green	Brown	White	Gray	Yellow	Orange	Shield
E (Voltage) F (Push-pull) C (Open Collector)	Vcc	0 V	A		B		Z		G
L、A (Line Driver)	Vcc	0 V	A	A/	B	B/	Z	Z/	G

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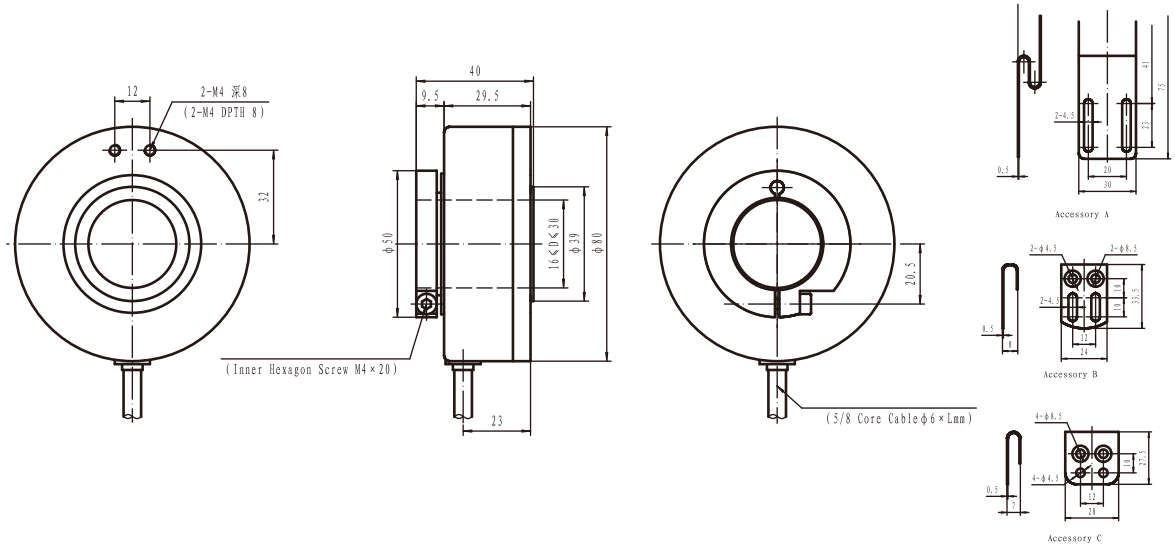
Product Selection Guide

SA80B
Applications & Features

Ultra-thin design, saving mounting space.
Large hollow shaft from 16mm to 30mm.
Multple mounting brackets are available.
Mainly used in elevators, motors, light industrial machinery for displacement, speed measurement.
Imported optoelectronic components with high reliability and anti-interference.
Long life and wide temperature range.

Mechanical Drawing



Electrical Specifications

Output Type	Supply Voltage DC (V)	Current Consumption (mA)	Output Voltage (V)		Rise Time (ns)	Fall Time (ns)	Frequency Response (kHz)
			V_H	V_L			
E (Voltage)	5±0.25	≤80	>3.5	≤0.7	≤500	≤100	0-300
	8-26	≤120	>VCC-2.5	≤0.7	≤500	≤100	0-300
	10-30						
F (Push-pull)	5±0.25	≤80	>3.5	≤0.7	≤500	≤100	0-300
	8-26	≤120	>VCC-2.5	≤0.7	≤500	≤100	0-300
	10-30						
C (Open Collector)	5±0.25	≤60	>VCC-2.5	≤0.7	≤500	≤100	0-300
	8-26						
	10-30						
L (Line Driver)	5±0.25	≤100	>3.5	≤0.7	≤200	≤200	0-300
A (Wide Voltage Line Driver)	8-26	≤60	>VCC-2.5	≤0.7	≤500	≤100	0-300
	10-30						

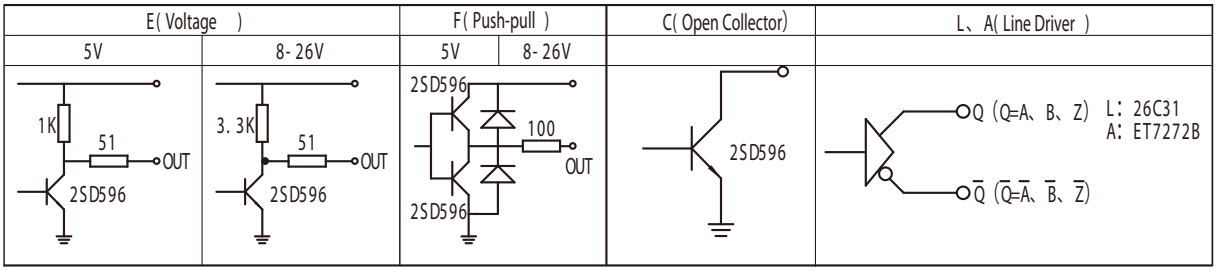
Mechanical Specifications

Max. Speed (r/min)	Start Torque(25 ℃) (N. M)	Max. Load on Shaft (N)		Moment of Inertia (kgm^2)	Weight (kg)
		Radial	Axial		
6000	$1*10^{-3}$	40	20	$4*10^{-6}$	≈0.60

Enviromental Specifications

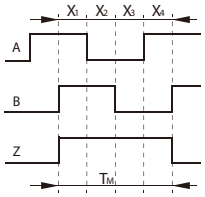
Operating Temp. (℃)	-20～+85	Impact Resistance (m/s^2)	50 (3 times on x,y,z direction, each time last for 6ms)
Storage Temp. (℃)	-30～+95	Anti-vibration (m/s^2)	20 (10～200Hz 2 hours on X,Y,Z direction)
Relative Humidity	35%～85%RH No Condensition	Protection Class	Common IP54

Output Circuits

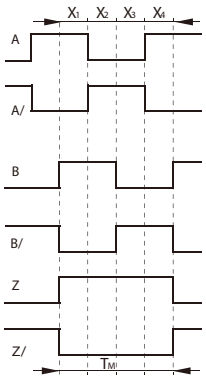


Note: C,F output is shorted to ground pretection diode

Output Waveform



C, E, F Output



L,A Output

Wave Ratio : X1+X2=0.5T±0.1T X2+X3=0.5T±0.1T

Phase Different : Xn≥0.125T (n=1,2,3,4)

Absolute Angle Error : ≤0.2T

Cycle Error : ≤0.05 T

T=360° / N (N= lines count per revolution)

Width of Z signal

1、Tm=1T±0. 5T Tm=nT± 0.1 T (n≥ 2)

The phase relation of Z signal and A,B signal is not stipulated.

2、Tm=0.5T±0.25T Tm=0.25T± 0.125T

The rising edge of the Z-channel signal is aligned with the rising edge of the B-channel signal

Electrical Connections

Cable Color	Red	Black	Green	Brown	White	Gray	Yellow	Orange	Shield
E (Voltage) F (Push-pull) C (Open Collector)	Vcc	0 V	A		B		Z		G
L、A (Line Driver)	Vcc	0 V	A	A/	B	B/	Z	Z/	G

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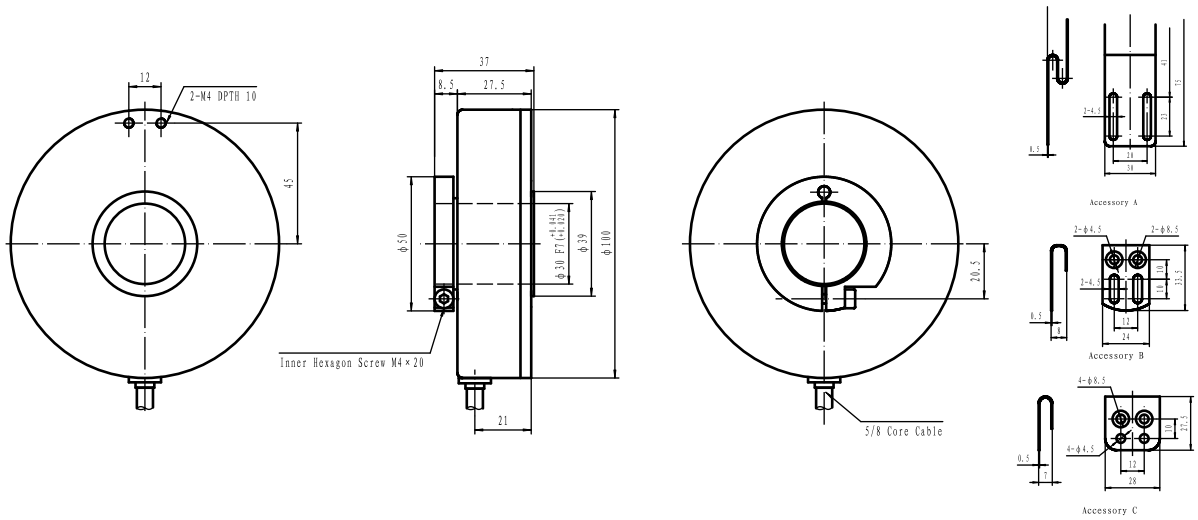
Product Selection Guide

SA100B30
Applications & Features

Ultra-thin design, saving mounting space.
Large hollow shaft from 20mm to 30mm.
Multple mounting brackets are available.
Mainly used in elevators, motors, light industrial machinery for displacement, speed measurement.
Imported optoelectronic components with high reliability and anti-interference.
Long life and wide temperature range.

Mechanical Drawing



Electrical Specifications

Output Type	Supply Voltage DC (V)	Current Consumption (mA)	Output Voltage (V)		Rise Time (ns)	Fall Time (ns)	Frequency Response (kHz)
			V_H	V_L			
E (Voltage)	5±0.25	≤80	>3.5	≤0.7	≤500	≤100	0-300
	8-26	≤120	>VCC-2.5	≤0.7	≤500	≤100	0-300
	10-30						
F (Push-pull)	5±0.25	≤80	>3.5	≤0.7	≤500	≤100	0-300
	8-26	≤120	>VCC-2.5	≤0.7	≤500	≤100	0-300
	10-30						
C (Open Collector)	5±0.25	≤60	>VCC-2.5	≤0.7	≤500	≤100	0-300
	8-26						
	10-30						
L (Line Driver)	5±0.25	≤100	>3.5	≤0.7	≤200	≤200	0-300
A (Wide Voltage Line Driver)	8-26	≤60	>VCC-2.5	≤0.7	≤500	≤100	0-300
	10-30						

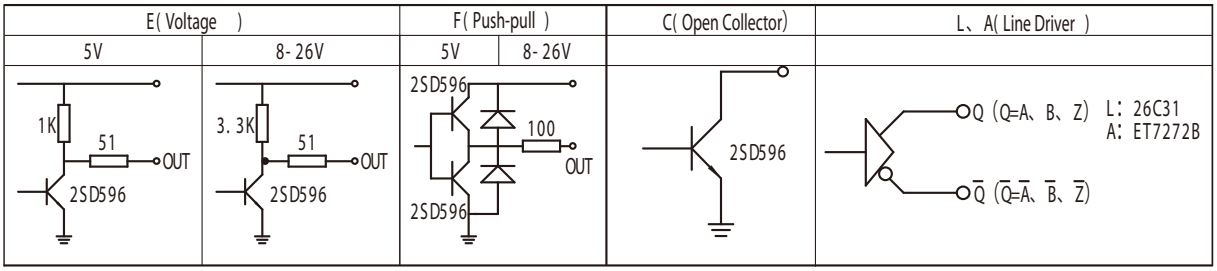
Mechanical Specifications

Max. Speed (r/min)	Start Torque(25 ℃) (N. M)	Max. Load on Shaft (N)		Moment of Inertia (kgm^2)	Weight (kg)
		Radial	Axial		
6000	$1*10^{-3}$	40	20	$4*10^{-6}$	≈0.65

Enviromental Specifications

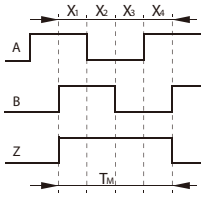
Operating Temp. (℃)	-20～+85	Impact Resistance (m/s^2)	50 (3 times on x,y,z direction, each time last for 6ms)
Storage Temp. (℃)	-30～+95	Anti-vibration (m/s^2)	20 (10～200Hz 2 hours on X,Y,Z direction)
Relative Humidity	35%～85%RH No Condensition	Protection Class	Common IP54

Output Circuits

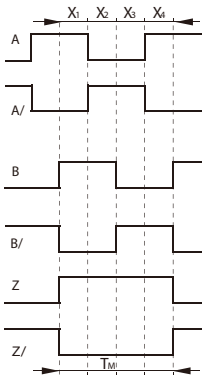


Note: C,F output is shorted to ground pretection diode

Output Waveform



C, E, F Output



L,A Output

Wave Ratio : X1+X2=0.5T±0.1T X2+X3=0.5T±0.1T

Phase Different : Xn≥0.125T (n=1,2,3,4)

Absolute Angle Error : ≤0.2T

Cycle Error : ≤0.05 T

T=360° / N (N= lines count per revolution)

Width of Z signal

1、Tm=1T±0. 5T Tm=nT± 0.1 T (n≥ 2)

The phase relation of Z signal and A,B signal is not stipulated.

2、Tm=0.5T±0.25T Tm=0.25T± 0.125T

The rising edge of the Z-channel signal is aligned with the rising edge of the B-channel signal

Electrical Connections

Cable Color	Red	Black	Green	Brown	White	Gray	Yellow	Orange	Shield
E (Voltage) F (Push-pull) C (Open Collector)	Vcc	0 V	A		B		Z		G
L、A (Line Driver)	Vcc	0 V	A	A/	B	B/	Z	Z/	G

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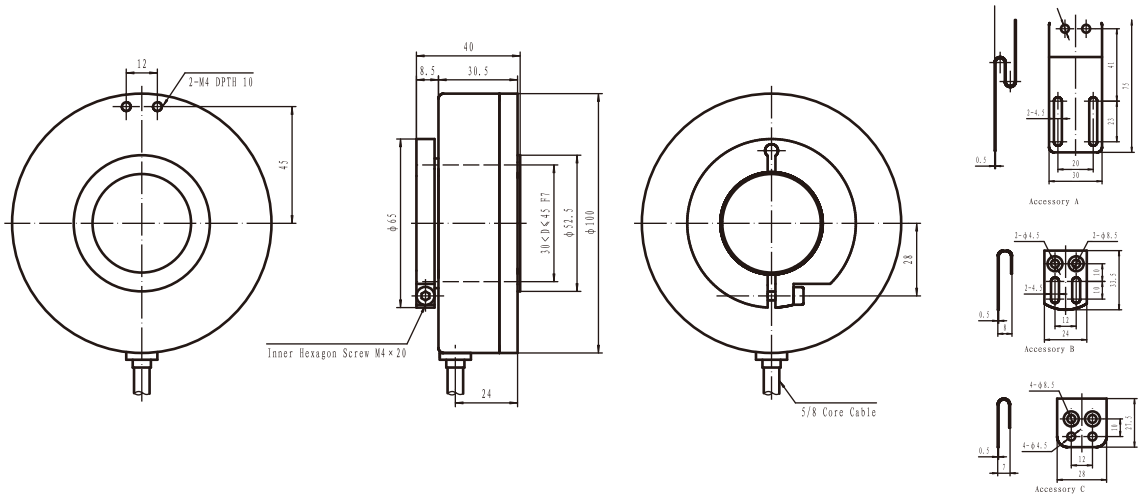
Product Selection Guide

SA100B45
Applications & Features

Ultra-thin design, saving mounting space.
Large hollow shaft from 30mm to 45mm.
Multple mounting brackets are available.
Mainly used in elevators, motors, light industrial machinery for displacement, speed measurement.
Imported optoelectronic components with high reliability and anti-interference.
Long life and wide temperature range.

Mechanical Drawing



Electrical Specifications

Output Type	Supply Voltage DC (V)	Current Consumption (mA)	Output Voltage (V)		Rise Time (ns)	Fall Time (ns)	Frequency Response (kHz)
			V_H	V_L			
E (Voltage)	5±0.25	≤80	>3.5	≤0.7	≤500	≤100	0-300
	8-26	≤120	>VCC-2.5	≤0.7	≤500	≤100	0-300
	10-30						
F (Push-pull)	5±0.25	≤80	>3.5	≤0.7	≤500	≤100	0-300
	8-26	≤120	>VCC-2.5	≤0.7	≤500	≤100	0-300
	10-30						
C (Open Collector)	5±0.25	≤60	>VCC-2.5	≤0.7	≤500	≤100	0-300
	8-26						
	10-30						
L (Line Driver)	5±0.25	≤100	>3.5	≤0.7	≤200	≤200	0-300
A (Wide Voltage Line Driver)	8-26	≤60	>VCC-2.5	≤0.7	≤500	≤100	0-300
	10-30						

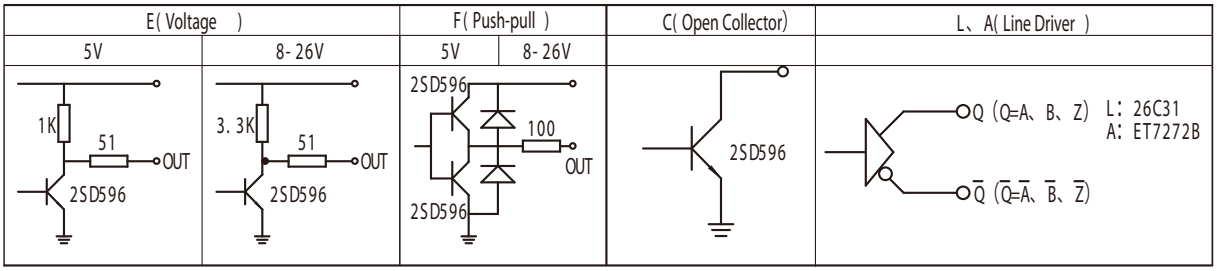
Mechanical Specifications

Max. Speed (r/min)	Start Torque(25 ℃) (N. M)	Max. Load on Shaft (N)		Moment of Inertia (kgm^2)	Weight (kg)
		Radial	Axial		
6000	$1*10^{-3}$	40	20	$4*10^{-6}$	≈0.60

Enviromental Specifications

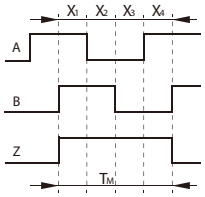
Operating Temp. (℃)	-20～+85	Impact Resistance (m/s^2)	50 (3 times on x,y,z direction, each time last for 6ms)
Storage Temp. (℃)	-30～+95	Anti-vibration (m/s^2)	20 (10～200Hz 2 hours on X,Y,Z direction)
Relative Humidity	35%～85%RH No Condensition	Protection Class	Common IP54

Output Circuits

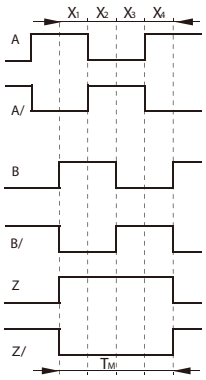


Note: C,F output is shorted to ground pretection diode

Output Waveform



C, E, F Output



L,A Output

Wave Ratio : X1+X2=0.5T±0.1T X2+X3=0.5T±0.1T

Phase Different : Xn≥0.125T (n=1,2,3,4)

Absolute Angle Error : ≤0.2T

Cycle Error : ≤0.05 T

T=360° / N (N= lines count per revolution)

Width of Z signal

1、Tm=1T±0. 5T Tm=nT± 0.1 T (n≥ 2)

The phase relation of Z signal and A,B signal is not stipulated.

2、Tm=0.5T±0.25T Tm=0.25T± 0.125T

The rising edge of the Z-channel signal is aligned with the rising edge of the B-channel signal

Electrical Connections

Cable Color	Red	Black	Green	Brown	White	Gray	Yellow	Orange	Shield
E (Voltage) F (Push-pull) C (Open Collector)	Vcc	0 V	A		B		Z		G
L、A (Line Driver)	Vcc	0 V	A	A/	B	B/	Z	Z/	G