

INCREMENTAL SHAFT ENCODER

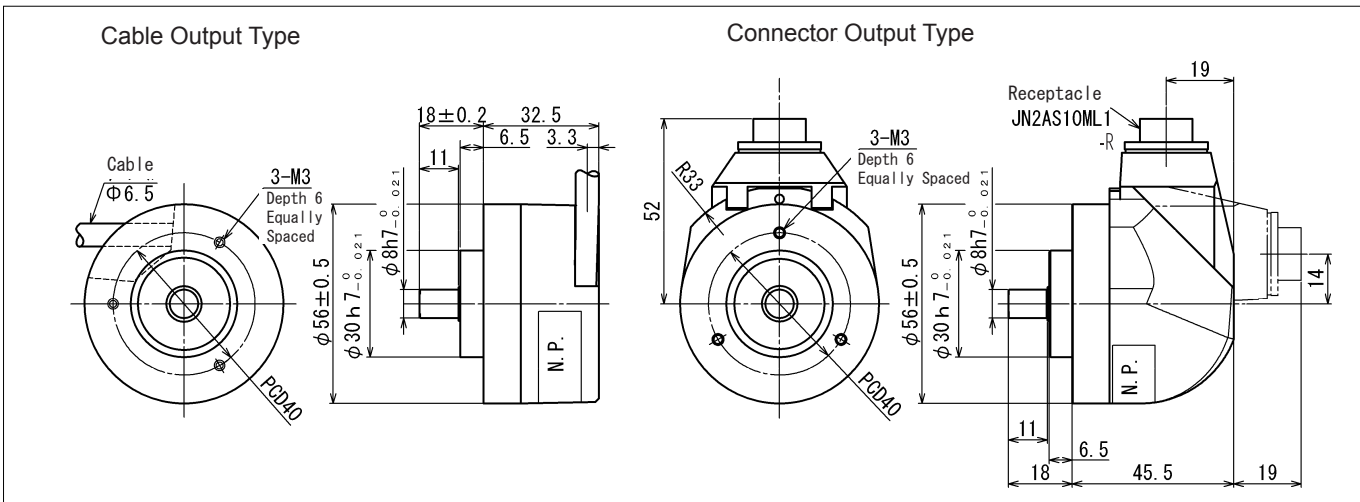


IRS5 series

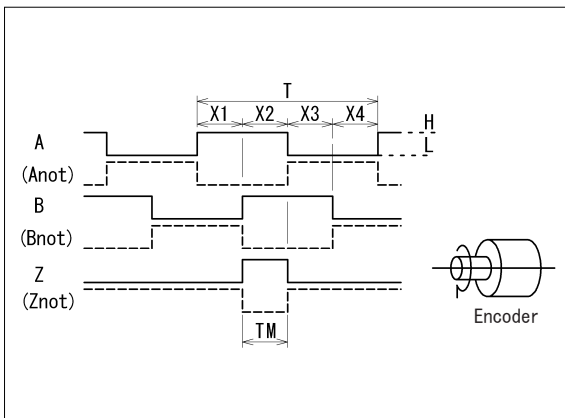
●Outer Diameter 56mm ●Length 32.5mm/45.5mm ●Shaft Diameter 8.0mm

Model Name **IRS5X0** — **XXXX** — **XXX**
 Model Output Pulse (P/R) Function Number

Dimensions



Output Signals



Square-wave Accuracy

~5000P/R
 $X1+X2=0.5T \pm 0.1T$
 $X2+X3=0.5T \pm 0.1T$
 $Xn \geq 0.15T$ (n=1,2,3,4)
 $TM=0.25T \pm 0.1T$ (=X2)
 Position relationship of A&B channels and Z channel are as left.
 $P=1.0T \pm 0.1T$

5001~10000P/R ($\times 2$)
 $X1+X2=0.5P \pm 0.15P$
 $X2+X3=0.5P \pm 0.15P$
 $Xn \geq 0.1P$ (n=1,2,3,4)
 $TM=0.25P \pm 0.15P$ (=X2)
 Position relationship of A&B channels and Z channel are as left.

Signal Accuracy

~5000P/R
 Accumulative Angle Error : $\leq 0.2T$
 Pitch Error : $\pm 0.01T$
 Adjacent Pitch Error : $\pm 0.005T$

5001~10000P/R ($\times 2$)
 Accumulative Angle Error : $\leq 0.4T$
 Pitch Error : $\pm 0.1T$

$*T=360^\circ / N$ (N:[P/R])

Wire Connection

Connector Output

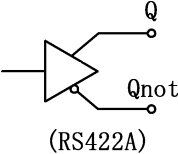
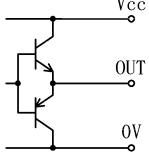
Pin No.	1	2	3	4	5	6	7	8	9	10
IRS520	+5V	0V	A	Anot	B	Bnot	Z	Znot	—	FG
IRS560	+Vcc	0V	A	0V	B	0V	Z	0V	—	FG

Cable Output

Color	White	Black	Red	Pink	Olive	Blue	Yellow	Orange
IRS520	+5V	0V	A	Anot	B	Bnot	Z	Znot
IRS560	+Vcc	0V	A	0V	B	0V	Z	0V

※Shield=FG

Electrical Specifications

Item/Model	IRS520	IRS560
Output Pulse	100, 200, 300, 500, 512, 600, 720, 900, 1000, 1024, 1200, 1500, 2000, 2400, 2500, 4096, 5000, 8192, 10000	
Supply Voltage (Vcc)	5V±0.5V	10.8V~26.4V
Supply Current (No load)	≤70mA	≤70mA
Output Type	Line Driver	Complementary
Output Circuit	 (RS422A)	
Output Voltage	H	≥2.4V
	L	≤0.5V
Output Current	±10mA	≤40mA
Max. Applied Voltage	—	—
Min. Load Resistance	—	—
Rise Time	≤100ns	350ns (Typ.)
Fall Time	≤100ns	50ns (Typ.)
Response Frequency	0~300kHz	0~200kHz
Bypass Capacitor(0V-FG)	0.22μF	0.22μF
Bypass Capacitor (Vcc-FG)	0.22μF	0.22μF
Determinate Time of ABZ signals	Output signal is not stable in 30ms after the power is on.	

IRS5 Series

Mechanical Specifications

Mech. Perm. Speed	6000	min ⁻¹	
Starting Torque	≤0.007	N·m	at +25°C
Shaft Load	Radial	≤30	N [Shaft Center]
	Axial	≤20	N
Moment of Inertia	3.0×10 ⁻⁶	kg·m ²	
Max. Accel. Speed	40000	rad/s ²	
Cable Length	1000	mm	[Cable Output Only] Wire Thickness 0.18mm ² , Diameter 6.5mm, Twist Pair Shield Cable
Connector	JN2AS10ML1-R		[Connector Output Only] Recommended Cable : JN2DS10SL1-R (JAE) (Adopted cable φ5.7~7.3mm) (Not included) JN2DS10SL2-R (JAE) (Adopted cable φ6.5~8.0mm) (Not included) Socket Contact : JN1-22-22S-PKG100 (AWG21~25) (Not included)
Mass	Cable Output	Approx. 0.2	kg Without Cable
	Connector Output	Approx. 0.3	kg

Environmental Specifications

Operating Temperature	IRS520	-20~+85	°C	Without Dewfall
	IRS560	-20~+70	°C	
Storage Temperature		-20~+85	°C	Without Dewfall
Vibration *1		100	m/s ²	25~2000Hz, X·Y·Z Each Direction 2h
Shock *1		1000	m/s ²	6ms, Half Sin Pulse, X·Y·Z Each Direction 2 Times
Protection Grade *1		IP66	Equivalent	[No Shaft Rotation]

*1 Test Conditions

Note Specifications subject to change without notice.

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