

Shaft encoder values

State Width Error (ΔS): The deviation, in electrical degrees, of each state width from its ideal value of 90° .

Phase (ϕ): The number of electrical degrees between the center of the high state of channel A and the center of the high state of channel B. This value is nominally 90° for quadrature output.

Phase Error ($\Delta\phi$): The deviation of the phase from its ideal value of 90° .

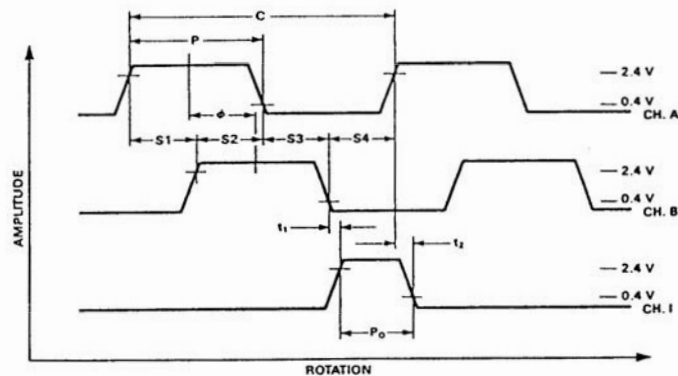
Direction of Rotation: When the codewheel rotates in the counterclockwise direction (as viewed from the encoder end of the motor), channel A will lead channel B. If the codewheel rotates in the clockwise direction, channel B will lead channel A.

Index Pulse Width (P_ϕ): The number of electrical degrees that an index output is high during one full shaft rotation. This value is nominally 90° or $1/4$ cycle.

Absolute Maximum Ratings

Storage Temperature, T_s	-40°C to 100°C
Operating Temperature, T_A	-40°C to 100°C
Supply Voltage, V_{CC}	-0.5 V to 7 V
Output Voltage, V_o	-0.5 V to V_{CC}
Output Current per Channel, I_{OUT}	-1.0 mA to 5 mA
Vibration.....	20 g, 5 to 1000 Hz
Shaft Axial Play.....	± 0.25 mm (± 0.010 in.)
Shaft Eccentricity Plus Radial Play.....	0.1 mm (0.004 in.) TIR
Velocity.....	30,000 RPM
Acceleration.....	250,000 rad/sec ²

Output Waveforms



Recommended Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Units	Notes
Temperature	T_A	-40		100	°C	
Supply Voltage	V_{CC}	4.5	5.0	5.5	Volts	Ripple < 100 mV _{pp}
Load Capacitance	C_L			100	pF	2.7 kΩ pull-up
Count Frequency	f			100	kHz	Velocity (rpm) x N/60
Shaft Perpendicularity Plus Axial Play				± 0.25 (± 0.010)	mm (in.)	6.9 mm (0.27 in.) from mounting surface
Shaft Eccentricity Plus Radial Play				0.04 (0.0015)	mm (in.) TIR	6.9 mm (0.27 in.) from mounting surface

Note: The module performance is guaranteed to 100 kHz but can operate at higher frequencies. 2.7 kΩ pull-up resistors required for HEDS-5540 and 5640.

Distributor :



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