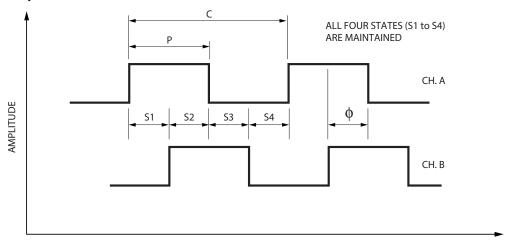
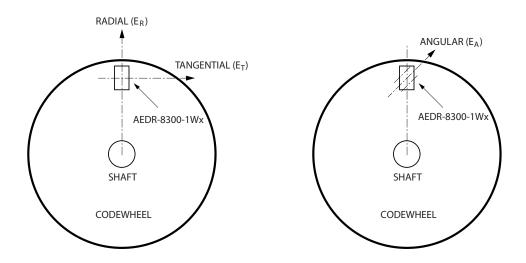
Output waveform



CODEWHEEL ROTATION OR LINEAR MOVEMENT



Absolute Maximum Ratings

Storage Temperature, T _S	-40° C to 85° C		
Operating Temperature, T _A	-20° C to 85° 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 8 mA		
ESD	Human Body Model JESD22-A114-A Class 2		
	Machine Model JESD22-A115-A Class B		

Notes:

- 1. Exposure to extreme light intensity (such as from flashbulbs or spotlights) may cause permanent damage to the device.
- 2. CAUTION: It is advised that normal static precautions should be taken when handling the encoder in order to avoid damage and/or degradation induced by ESD.
- 3. Proper operation of the encoder cannot be guaranteed if the maximum ratings are exceeded.

Recommended Operating Conditions

T _A	-20	25	85	0.0	
V _{CC}			05	°C	
	3.0	3.3 / 5.0	5.5	V	Ripple < 100 mVp-p
I _{LED}	13	15	18	mA	See Note 1
C_L			100	pF	2.7 kΩ Pull-Up
F	0.3		60	kHz	See Note 3
E _R			±0.38 (±0.015)	mm (in.)	
E _T			±0.38 (±0.015)	mm (in.)	
E _A		0	±1.5	deg.	
C _T		0	1	deg.	
G	1.0 (0.04)	2.0 (0.08)	2.5 (0.10)	mm (in.)	
	I _{LED} C _L F E _R E _T E _A C _T	I _{LED} 13 C _L F 0.3 E _R E _T E _A C _T	I _{LED} 13 15 C _L F 0.3 E _R E _T E _A 0 C _T 0	ILED 13 15 18 CL 100 F 0.3 60 ER ±0.38 (±0.015) ET ±0.38 (±0.015) EA 0 ±1.5 CT 0 1	ILED 13 15 18 mA CL 100 pF F 0.3 60 kHz ER ±0.38 (±0.015) mm (in.) ET ±0.38 (±0.015) mm (in.) EA 0 ±1.5 deg. CT 0 1 deg.

Notes:

1. LED Current Limiting Resistor:

For Vcc = 5.0 V, recommended series resistor = 220 Ω (\pm 10 %) For Vcc = 3.3 V, recommended series resistor = 110 Ω (\pm 10 %)

- 2. Count frequency = velocity (rpm) \times N / 60.
- 3. Data collected based on Avago production characterization.

Encoding Characteristics

Encoding characteristics over the recommended operating condition and mounting conditions.

Parameter	Symbol	Typical	Maximum	Unit
Pulse Width Error (Ch.A, Ch.B)	ΔΡ	16	75	°e
Phase Error	Δφ	10	60	°e

Note:

Electrical Characteristics

Characteristics over recommended operating conditions at 25° C.

Parameter	Symbol	Minimum	Typical	Maximum	Unit	Notes
Detector Supply Current	lcc		4.8	6.0	mA	Vcc = 5 V
			3.9	4.1		Vcc = 3.3 V
High Level Output Voltage	V_{OH}	2.4			V	$I_{OH} = -0.2 \text{ mA}$
Low Level Output Voltage	V_{OL}			0.4	V	$I_{OL} = 8.0 \text{ mA}$
Rise Time	t _r		500		ns	$C_{L} = 25 \text{ pF}$
Fall Time	t _f		100		ns	$R_L = 2.7 \text{ k}\Omega$

^{1.} Typical values represent the encoder performance at typical mounting alignment, whereas the maximum values represent the encoder performance across the range of recommended mounting tolerance.