



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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Incremental Shaft Encoder

OPE1275S Single Channel (Tachometer)

OPE2275S Dual Channel



Features:

- Body O.D. = 28mm [1.10"]
- Shaft Diameter 6.35 mm [0.25"]
- 3/8"-32 UNF Thread
- Pulses per revolution 256 maximum
- Analog Output
- 100 - 5,000 RPM



Description:

The **OPE1275S** and **OPE2275S** are designed for small shaft motors. The **OPE1275S** provides a single channel analog output for speed of rotation while the **OPE2275S** provides a dual channel analog output for speed and direction of rotation.

The output of the **OPE1275S** provides a rise and fall pulse providing the designer two slopes for each pulse doubling the count capability. The **OPE2275S** provides quadrature rise and fall pulse patterns providing the design engineer 4 times the pulse per revolution count.

Power requirements are 5 volts \pm .5 volts.

Electrical connection is achieved with a 4-pin Molex 53048-0410 connector providing V+, Ground and Output pins. The mating connector is a 4-pin Molex 51021-0400 (Terminal pin 50058 or 50079) or equivalent.

Frequency response is from DC to 25 kHz providing a maximum of 256 cycles per revolution (CPR) and 1024 quadrature states per revolution (PPR).

This product is designed for general encoding for low-speed applications.

The **OPE1275S** and **OPE2275S** are fully assembled and ready to be connected to your application.

Applications:

- Printer motors
- Machine automation
- Machine safety

Ordering Information

OPE X 275 S - ZZZ

OPTEK Product Encoder

Channels:
 1 = Single channel
 2 = Dual Channel

Motor Diameter- 27.5mm

Resolution per revolution:
 128 holes per revolution
 256 holes per revolution

Shaft Configuration:
 S = Extended Shaft



RoHS

OPTEK reserves the right to make changes at any time in order to improve design and to supply the best product possible.

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Absolute Maximum Ratings ($T_A=25^\circ\text{C}$ unless otherwise noted)

	Maximum	Units
Storage Temperature Range	-40° C to +85°	C
Operating Temperature Range	0° C to +85°	C
Power Supply Voltage V_{CC}	4.5 to 5.5	V_{DC}
Power Dissipation ⁽²⁾	250	mW
Vibration (5 Hz to 2 kHz)	20	g
Shaft Axial Play	± 0.51 mm [0.02"]	
Off-Axis Mounting Tolerance	0.254 mm [0.01"]	
Acceleration	250,000	rad/sec ²

Mechanical Specifications:

	Dimensions	Units
Moment of Inertia	6.48×10^{-5}	OZ-IN-S ²
Shaft Length	0.3 to 0.7	Inches

Electrical Characteristics ($T_A = 25^\circ\text{C}$ unless otherwise noted — for reference only)

SYMBOL	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
V_{CC}	Supply Voltage	4.5	5.0	5.5	V	
I_{CC}	Supply Current	-	21	27	mA	$V_{CC} = 5.0$ volts
V_{OH}	High Level Output Voltage	$V_{CC}-0.5$	-	-	V	$I_C = 100 \mu\text{A}$
V_{OL}	Low Level Output Voltage	-	-	0.4	V	$I_C = 20$ mA
TR	Rise Time	-	500	-	ns	10% to 90%, $V_{CC} = 5.0$ volts
TF	Fall Time	-	100	-	ns	10% to 90%, $V_{CC} = 5.0$ volts
FR	Frequency Response	-	-	60	kHz	
H.S.	Hole Size	0.10	-	-	inch	
Rotation	Maximum speed of rotation with 1024 holes per rotation	-	-	100	rev/sec	

Encoding Characteristics:

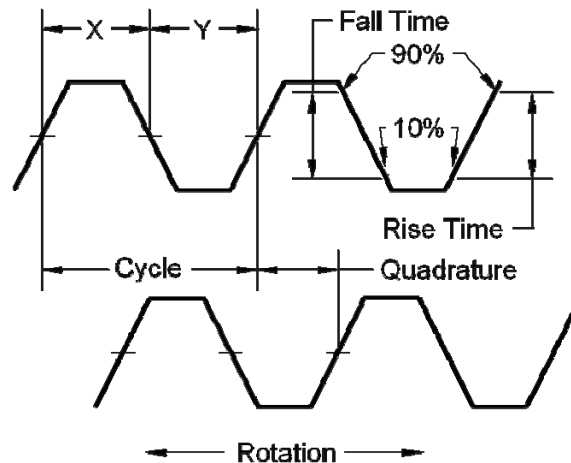
SE	Symmetry Error	0	16	75	°e	
QE	Quadrature Error—OPE2275 only	0	12	60		

Notes:

- All parameters measured using pulse technique, $V_{CC} = 5.0$ volts and $T_A = 25^\circ\text{C}$.

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Timing Diagram:



Timing Definitions:

PPR = Pulses Per Revolution

Electrical Degree ($^{\circ}e$) = 1/360th of 1 cycle

Cycle = 360 electrical degrees ($^{\circ}e$)

Symmetry = Relationship between X & Y in electrical degrees ($^{\circ}e$).

Position Error = The difference between the actual shaft position and the position indicated by the encoder cycle count.

Quadrature: The lead or lag difference between channels "A" and "B" in electrical degrees (normally $90^{\circ}e$)

Cycle Error = The difference between the actual shaft rotational position and the cycle count rotational position.

Rise Time = Time required to switch between 10% and 90% of the highest to lowest signal levels.

Fall Time = Time required to switch between 90% and 10% of the highest to lowest signal levels.

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