

# 120E

## Optical Encoder



The model 120E is a light-duty optical encoder that can be manually or motor operated. This unique device outputs two square waves at a maximum rate of 128 pulses in quadrature with other resolutions as low as 10 pulses available. Typical applications includes Motion sensing and control, Motor control, Flow control, Low-to-high input for test and measurement, Medical instrumentation, Robotics and Computer Peripherals.



### ELECTRICAL

Parameter	Min.	Nom.	Max.
VCC Range (V)	4.75	5	5.25
Supply Current (mA)			30
Voh (V)	2.4		
Vol (V)			.4
Pull-up Resistor (KOhm)		10	
Output	Channel A leads Channel B by 90° electrically, CCW direction		

### ENVIRONMENTAL

Parameter	Min.	Nom.	Max.
Operating Temp (°C)	-40°		+65°
Storage Temp (°C)	-55°		+110°
Humidity:	85%RH @ 40°C, 240 hrs		

### TERMINAL

B66: PC Terminals, horizontal mounting  
 C24: PC Terminals, vertical mounting  
 CBL: 7.5 including cable  
 CN1: 7.5 including cable with connector

### MECHANICAL

Vibration:	10 to 2000Hz, 15G Mil Std, Method 204 Test Cond. C
Shock:	100G @ 6ms Mil Std. 202, Method 213 Test Cond. C
Rotational Torque:	
Sleeve	1.5 oz. in.
Ball bearing	.25 oz. in. max.
	<b>Low torque available</b>
Operating Speed:	300 RPM
Rotational Life:	10,000,000 cycles
Shaft End Play:	.005 max.
Shaft Radial Play:	.010 @ 1 in.
Shaft Axial Force:	15 lbs. push/pull
Terminal Strength:	2 lbs.
Weight:	.74 oz.

### FEATURES

- Long life-10 million revolutions minimum (contactless)
- Cost effective - elimination of A/D converters
- Stainless steel shafts and nickel-plated bushings in various lengths
- Stability- -40°C to +65°C operating temperature
- Variability-Cable and printed circuit terminations available

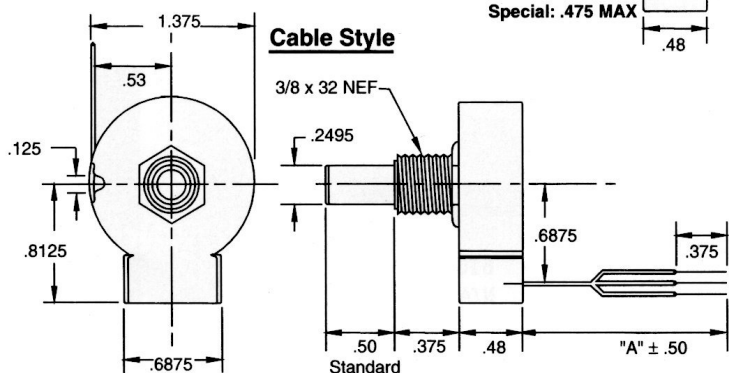
# Model 120E

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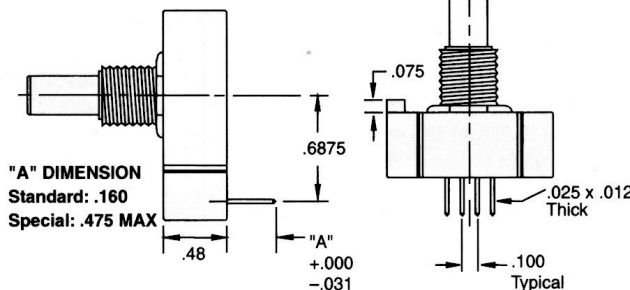
## Optical Encoder

### DIMENSIONS Styles

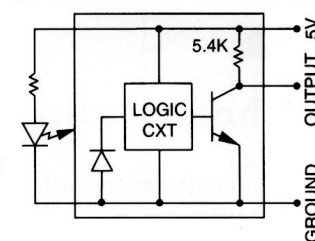
#### 120E Series



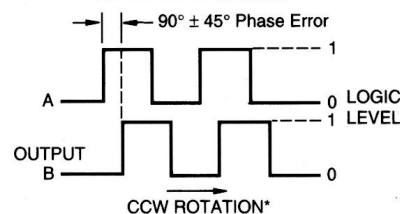
#### PC Terminals: Type C-24



#### Block Diagram One Output

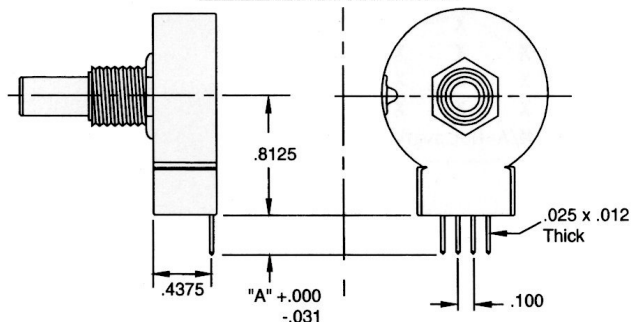


#### Output Waveform



\*Channel A leads Channel B by 90° electrically in CCW direction

#### PC Terminals Type B-66



TERM #	FUNCTION
1	5VDC ± 5% @ 30ma MAX
2	"A" Out
3	Ground
4	"B" Out

"A" DIMENSIONS	
Standard	.180
Special	.400 MAX

#### Dimension Tolerances, Unless Otherwise Specified

FRACTIONS = ± 1/64 (0.40mm) DECIMALS = ± .005 GRDS = ± .010 (0.25mm)

#### CABLE CODE

COLOR	FUNCTION
Red	5VDC ± 5% @ 30ma MAX
Green	Ground
Yellow	"A" Out
Orange	"B" Out

#### NOTE:

- "A" Cable Length Standard 7.50 ± .50  
Other lengths available, specified by customer
- "A" and "B" Outputs are TTL compatible on all models

### ORDERING INFORMATION

120

E

N

-

128

-

CBL

#### SERIES

120 Sleeve-bearing construction with two channel quadrature output

#### SHAFT & BUSHING SIZE

N= 1/4 in. (6.35mm) diameter by 3/4 in. (19.05mm) FMS long shaft. 3/8 in. (9.53mm) diameter x 32 NEF 2A by 3/8 in. (9.53mm) long bushing

#### TERMINATION

B66= PC Terminal Type B-66, Horizontal mounting  
C24= PC Terminal Type C-24, vertical mounting  
CBL= 7.5 in. (190.5mm) Long cable/lead  
CNI= 7.5 in. (190.5mm) Long cable/connector

#### PULSES PER RESOLUTION

#### PRODUCT ID

E=Encoder

ISO9001/QS9000



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