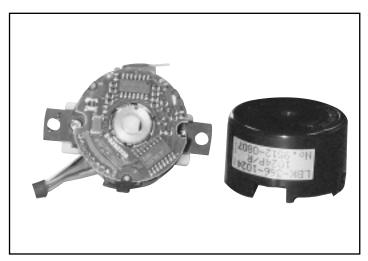
SIZE 15 SERIES LBK

INCREMENTAL MODULAR ENCODER



SPECIFICATIONS

Electrical

Pulse per Revolution	Up to 1024
Supply Voltage	5Vdc, 12 Vdc, 15 Vdc
Output Format	Dual Square Wave in Quadrature with
	Index
Output Option	TTL, HTL, Open Collector, TTL Line Driver
	[26LS31]
Current Requirements	TTL: 80mA. Max.
	HTL: 120mA Max.
	Open Collector: 80mA Max.
	TTL Line Driver: 160mA Max.
	[into No load]
Frequency Resonse	100 KHz
Electrical Connections	20" #28AWG UL Recognized
	Style 2651 Flat Cable with Pin
	Connector: Mating Connector Berg
	#65962-001 not supplied.

Mechanical

Rated Speed	5000 RPM max.
Shaft Angular Acceleration	104 rad/sec2
Moment of Inertia	5.8 to 8.8 10-5 oz. insec2, depending on
	Hub I.D.
Weight	2.1 oz.

Motor Mounting Requirements

Motor Mounting nequiremen	เเง
Shaft Tolerance	1/4", 3/8": +0, -0.0006"
	4mm, 5mm, 6mm: +0, -0.0012mm
	8mm, 10mm: +0, -0.015mm
Shaft Length	0.591"/0.787" [1/4", 4mm, 5mm, 6mm
	shaft Dia.]
	0.670"/0.787" [3/8", 8mm, 10mm
	Shaft Dia.]
Shaft Axial Movement	1-300 PPR: 0.008" Max.
	310-600 PPR: 0.004" Max.
	601-1024 PPR: 0.002" Max.
	[Each Direction]
Shaft Runout	0.002" TIR Max.
Perpendicularity	0.0012" TIR Max. [Shaft to Mounting
	Surface]
Mounting Holes	#4-40 or M3.2 Holes 180° apart on 1.812"
	Dia. B.C., or #2-56 or M2.6 for 1.280" Dia.
	B.C.

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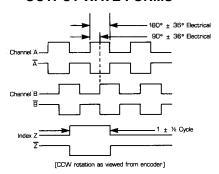
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FEATURES

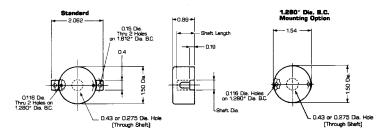
- 1.5" O.D., modular designed
- · Self-aligning, -centering, -gapping
- 100 KHz frequency response
- Up to 1024 P/R
- Positive lock-on cover
- Applications:

Computer printer, Phototypesetter, Semiconductor Processing, Tape transport, Digital Plotter, Medical Diagnostic Equipment

OUTPUT WAVE FORMS



OUTLINE DIMENSIONS



OPTIONAL CONNECTOR/ELECTRICAL CONNECTIONS

Wire Color	TTL, HTL & Open Collector	Line Driver
White	Vcc	5VDC
Black	OV, Common	OV
Red	A	Α
Pink	OV, Common	\overline{A}
Yellow	Z	Z
Orange	OV, Common	₹
Green	В	В
Blue	OV, Common	\overline{B}

SPECIFICATIONS

Environmental

Liivii OiliiiCiitai	
Temperature	Operating: 0 ° to +70 °C
	Storage: -20 °C to +80 °C
Shock	50G's for 6 ms 2 times each X, Y, Z
	directions
Vibration	10 to 200 Hz @2G's

Installation Instructons Model LBK

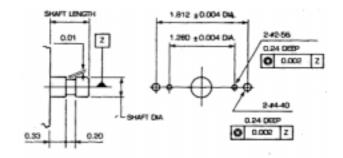
MOTOR MOUNTING REQUIREMENTS

	Shaft Diameter			
	1/4"	3/8"	4, 5, 6 mm	8, 10 mm
Shaft Dia. Tolerance	+0 -0.0006"	+0 -0.0006"	+0 -0.012mm	+0 -0.015mm
Shaft Length	0.591"/0.787"	0.670"/0.787"	0.591"/0.787"	0.670"/0.787"
Shaft Runout	0.002" TIR Max.			
Perpendicularity	0.0012" TIR Max. [Shaft to Mounting Surface]			

Shaft Axial Movement: [Each Direction]

1-300PPR 0.008" Max. 301-600PPR 0.004" Max.

601-1024PPR 0.002" Max



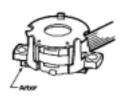
TOOLS AND HARDWARE REQUIRED

To install the LBK encoder, you will need the following tools and hardware:

Torque screwdriver Tie-lock 1.5mm hex key

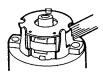
For 1.812" Dia. B.C. 4-40 UNC pan head screws Type B regular plain washers For 1.280" Dia. B.C. 2-56 UNC pan head screws Type B narrow series plain washers

ASSEMBLY PROCEDURE

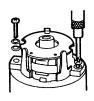


- 1. This encoder is mounted on a holding arbor to protect it from damage during shipmenmt. Do not remove it until ready for installation.
 - A) First loosen the hex head set screws [1.5 mm hex] that are in the disc hub.
 - B) Remove the two screws from the encoder base that hold it to the arbor. [Do not use these screws for encoder mounting.]
 - C) Carefully slide the encoder off the holding arbor.

You are now ready for installation.



2. Place the encoder assembly over the shaft and slide it down to the motor mounting surface. Do not use force when you have difficulty in insertion. Forcing insertion may cause malfunction of the encoder performance. Check to see if the set screw is loosened sufficiently, or if shaft tolerance meets the specifications.

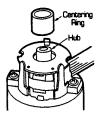


3. Apply tie-lock to the tip of the screws and fasten the encoder assembly loosely to the mounting surface. Use the appropriate specified size of the screws and washers. DO NOT TIGHTEN THE SCREWS.

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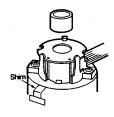
- 4. Apply tie-lock to the set screw. Use care to avoid putting tie-lock on the disc. Press the hub lightly toward the mounting surface until the disc is snugly seated against Hold the hub in position and tighten the set
- screw with 1.5mm hex kev. Tightening torque required is 5.2 LBS./IN.
- Clean excess tie-lock.



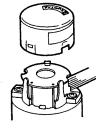
5. Place the centering ring over the hub and press it by rotating the ring into the inside diameter of the circuit board. While pressing the ring into the inside of the diameter of the circuit board, slide the assembly slightly so that the ring can be set far enough to eliminate axes motion of the assembly. You now establish concentricity. This is a most critical procedure to insure reliable performance of the encoder.



6. With the centering ring in place, tighten the screws holding the ring and the assembly. Tighten screws alternately with 2.6 LBS./IN. for the 1.812" dia. B.C. and with 1.7 LBS./IN. for the 1.280" dia. B.C. Do not apply excessive torque, resulting in deformation of the encoder assembly.



7. Remove the shim and ring. [Save both for future removal and re-installation.] Rotate the shaft slowly to be sure that the disc does not contact the mask.



8. Locate the cover to clean the cable and snap it into place.

SPECIFICATIONS OF AIR GAP

<u>PPR</u>	<u>GAP</u>
1 to 300	0.0098" ± 0.0020
301 to 600	0.0059" ± 0.0020
601 to 1024	0.0039" ± 0.0020

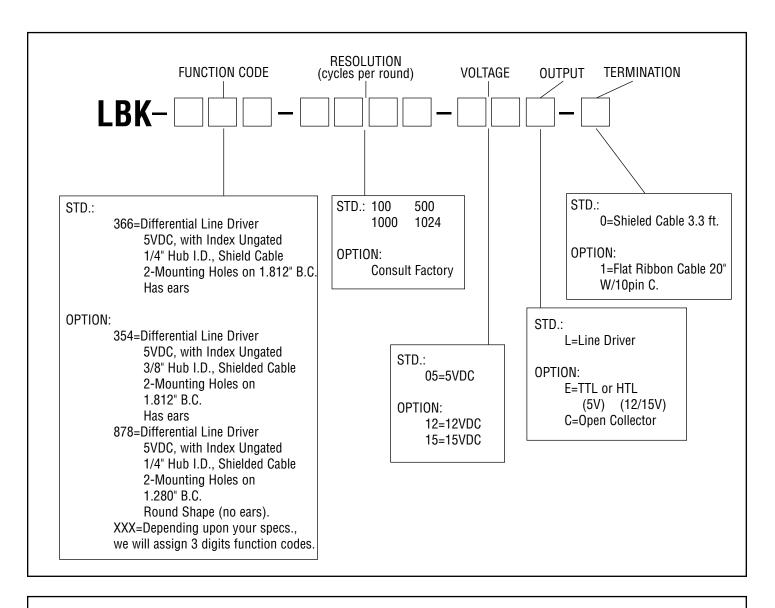
It is not recommended that the encoder be removed and reinstalled unless absolutely necessary. The frequent removal and reinstallation may affect the encoder performance.

If you return the encoder to the factory for repair, be sure that shim and the ring are in place, and the encoder is mounted on the holding arbor to avoid damage to the disc.

REMOVAL AND REINSTALLATION

- 1. When the encoder is removed from the motor, put the shim between the disc and the mask and place the ring snugly to the hub end. This is to avoid the disc contacting the mask and the circuit board. Be sure the shim and ring are clean.
- 2. Be careful not to strip threads of hex head by excessive force when loosening the set screw.
- By using the shim and the ring to re-establish air gap and concentricity, you will be able to reinstall the LBK quickly and easily.

How to order: SIZE 15 INCREMENTAL MODULAR



Available Resolution:

10, 100, 200, 250, 360, 500, 512, 900, 1000, 1024 — Glass

• Standard model has the following specifications.

OUTPUT FORMAT: Dual square wave in quadrqature with index. (A, B, Z)

Channel A leads B CCW rotation as viewed from encoder.

INDEX: There is no specified alignment between index and channels

CABLE: 3.3 ft. shielded cable

CONNECTION: +5V: White A: RED B: GREEN Z: YELLOW

0V: BLACK

A: PINK

B: BLUE

Z: ORANGE

• Note: The factory will assist you in construction of the model no. including special specifications. Please contact us. 1-800-35-SUMTAK

• Specifications subject to change without notice.