

## LD20 Incremental Encoder

### Features

Incremental encoder with 2" outer diameter

Aluminum housing with sealed bearings

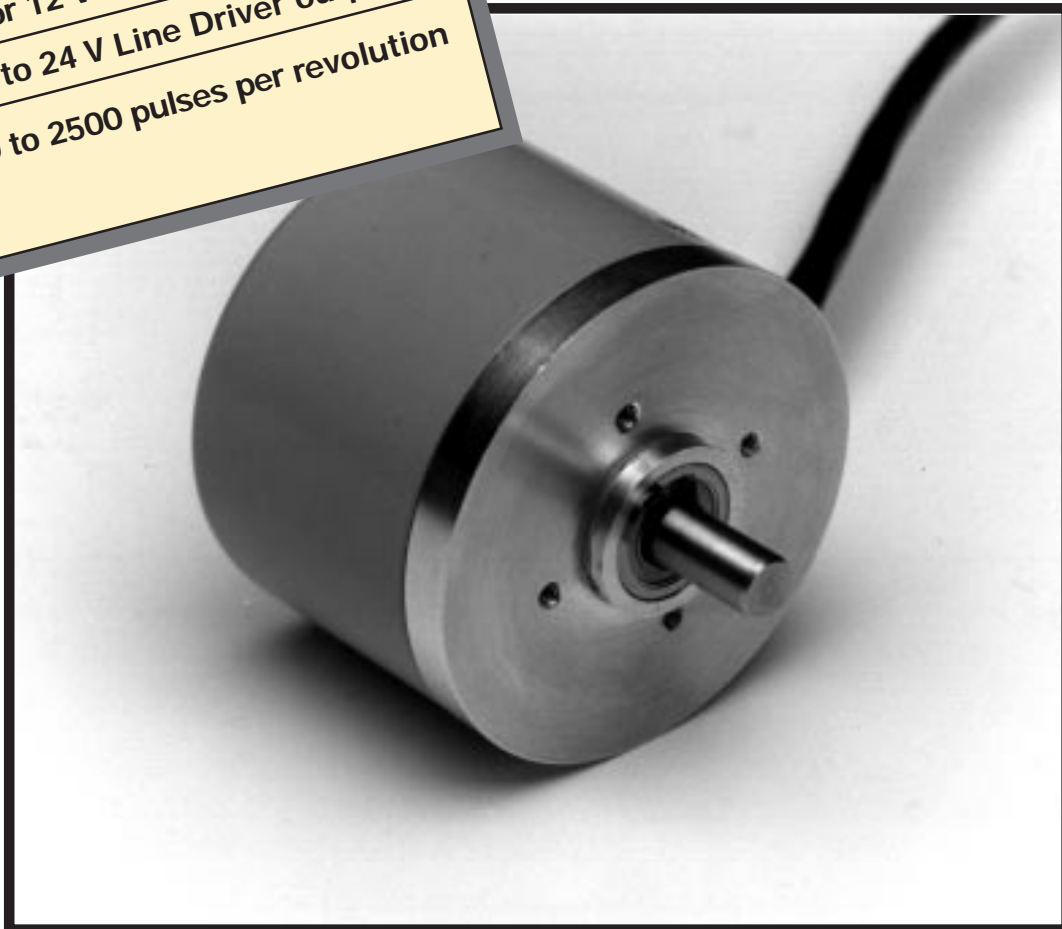
Quadrature output with reference marker

5 V Line Driver output

5 V or 12 V Open Collector output

8 V to 24 V Line Driver output

10 to 2500 pulses per revolution



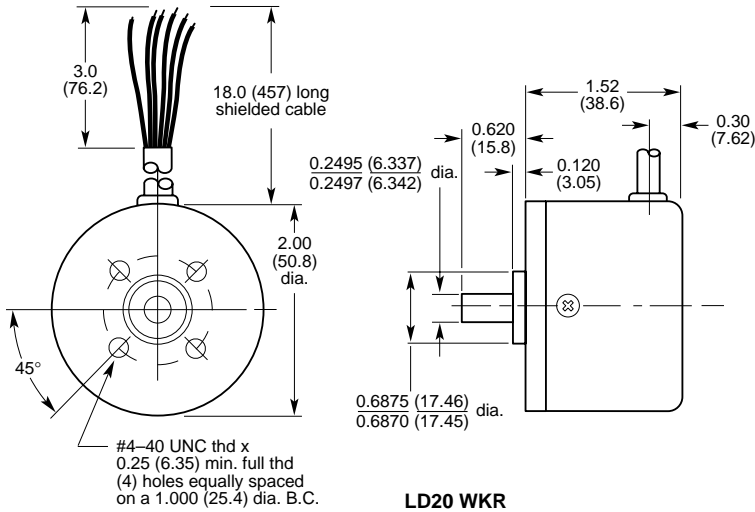
## Technical Data/Features

Number of pulses per revolution (Z)	10, 20, 30, 50, 60, 100, 128, 150, 180, 200, 240, 250, 256, 300, 336, 360, 400, 500, 512, 600, 720, 800, 900, 960, 1000, 1024, 1140, 1152, 1200, 1230, 1250, 1260, 1270, 1386, 1500, 1512, 1800, 1888, 2000, 2048, 2400, 2500	
Interfaces	RS-422 (3487 Line driver) Open collector (7406) 8-24 V Line driver (7272)	
Dimensions	See drawing	
Mass	4 oz (0.12 kg)	
Moment of inertia of rotor	$2 \times 10^{-4}$ oz-in-sec <sup>2</sup> (14.1 gcm <sup>2</sup> )	
Measurement step	90/Z°	
Reference (marker) signal	Number: 1 Position: Non-gated 180°±90° electrical Gated 180° nominal (gated w/count channel A)	
Error limits	45/Z°	
Measurement step deviation	45/Z°	
Max output frequency	100 kHz	
Max operating speed	3000 rpm at max shaft loading	
Max angular acceleration	50,000 radians/sec <sup>2</sup>	
Max starting torque	0.2 oz-in (1.4 Ncm)	
Permissible shaft loading	Radial (max at end of shaft)	5 lb (22 N)
	Axial	5 lb (22 N)
*Service life of bearings	2.2 x 10 <sup>9</sup> revolutions	
Working temp. range	0...+70 °C	
Storage temp. range	-20...+85 °C	
Permissible relative humidity	95% (condensation not permitted)	
Working voltage range	4.75 to 5.25 V 11.4 to 12.6 V 8.0 to 24.0 V	
Working current at no load	120 mA	
Signal cable	(power supply and drain wire are isolated from housing)— Diameter 0.19 in (5 mm)	

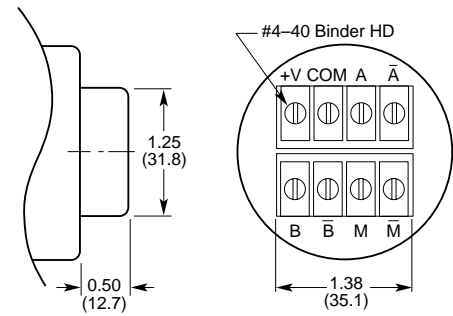
\*B10 Life with shaft loading of 1 lb (0.45Kg) axial and 2 lb (0.91 kg) radial (end of shaft)

# LD20

Dimensions in. (mm)



LD20 WKR



LD20 WTB

## How To Order

Type	Radial Cable exit 18"	Terminal Block exit
Face mounting flange, shaft 1/4" 5V RS-422	LD20 WKR 5	LD20 WTB 5
Face mounting flange, shaft 1/4" 5V Open Collector	LD20 WKR 5C	LD20 WTB 5C
Face mounting flange, shaft 1/4" 12V Open Collector	LD20 WKR 12C	LD20 WTB 12C
Face mounting flange, shaft 1/4" 24V Line Driver	LD20 WKR 24	LD20 WTB 24



## Example for ordering

LD20, 5V RS-422, face mounting flange, radial cable exit, shaft 1/4", 1024 pulses per revolution => **LD20 WKR 5, 1024**

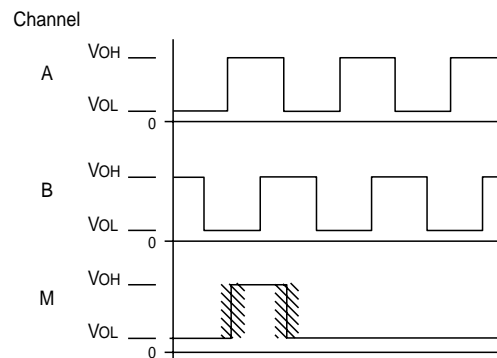
## Electrical Connections

Function	Line Driver Wire Color	Open Collector Wire Color
VDC input	Red	Red
Common	Black	Black
A output	White	White
B output	Green	Green
M output	White/Black	White/Black
A-bar output	Blue	NC
B-bar output	Orange	NC
M-bar output	Red/Black	NC
Shield	Drain wire	Drain Wire

## Output Waveforms

### Notes

- Channel A** leads **Channel B** for clockwise rotation when viewed from shaft end.
- Marker Pulses: Non-gated marker is approximately centered on positive-going edge of **Channel B** for clockwise rotation and is  $180^\circ \pm 90^\circ$  wide.
- Complementary signals (**A-bar**, **B-bar**, and **M-bar**) are supplied only on units with line drivers.



Shaded areas represent the locus of leading and trailing edges of marker pulse.