

# Series 31/32

This product has been discontinued.  
Please contact Dynapar for assistance.  
1-800-873-8731  
www.dynapar.com



- **Up to 1200 PPR**
- **Compact 2.25" cube shape**
- **Magnetic technology**

The 31/32 QUBE encoder is designed for operation in industrial environments. It resists dust, grease, moisture, and thermal and mechanical shocks, better than many other encoders. The 31/32 QUBE is stable in temperatures from 0° to 70°C.

The 31/32 QUBE generates digital incremental position data proportional to shaft rotation. Through higher mechanical and electronic operating speeds, the 31/32 QUBE can boost system speeds, cycle times, and productivity.

Its general-purpose design makes the 31/32 QUBE compatible with most programmable controllers, electronic counters, motion controllers, and motor drives. The 31/32 QUBE is electrically and physically interchangeable with most cube-style encoders on the market.

## Applications

- Measuring, cut-to-length or size for textile, metal, lumber and rubber industries
- Tracking, storage & retrieval, pick & place, conveying, and elevating for material handling applications
- Winding, including films, foils, wire and extrusions
- Measuring mechanical motion for processing, labeling, filling, mixing, batching, and packaging
- Position control, for flexible and automatic assembly equipment
- Speed feedback, for precise drive and machine monitoring and control

## Mechanical Features

- Rugged, magnetic transducer design
- Environmentally sealed enclosure
- Large 3/8", 1/4" or 6 mm diameter stainless steel shafts
- Durable anodized aluminum housing with 5/16" thick housing walls
- Extra-wide bearing span with heavy-duty sealed bearings front and rear
- 6000 RPM capability

## Electrical Features

- Wide selection of resolutions up to 1200 PPR
- 120 kHz electronic operating speed
- Wide input voltage
- Unidirection or quadrature outputs
- Optional complementary (differential) outputs
- Low current draw

## SPECIFICATIONS

### Electrical

**Code:** Incremental

**Resolution:** 1 to 1200 PPR (pulses/revolution)

**Format:** Two channel quadrature (AB)

**Phase Sense:** A leads B for CW shaft rotation as viewed from the shaft end of the encoder farthest from the connector or cable

**Quadrature Phasing:** 90° ± 18° electrical

**Symmetry:** 180° ± 18° electrical

**Waveforms:** Squarewave with rise and fall times less than 1 microsecond into a load capacitance of 1000 pf

**Input Power:**

4.5 min. to 26 VDC max. at 80 mA max., not including output loads

**Outputs:**

7273 Open Collector: 30 VDC max., 40 mA sink max.

7272 Push-Pull and Differential Line Driver: 40 mA sink or source

**Frequency Response:** 120 kHz min.

**Electrical Protection:** Overvoltage, reverse voltage and output short circuit protected

**Noise Immunity:** Tested to EN50082-2 (Heavy Industrial) for Electro Static Discharge, Radio Frequency Interference, Electrical Fast Transients, Conducted and Magnetic Interference

**Mating Connector:**

6 pin, style MS3106A-14S-6S (MCN-N4)

7 pin, style MS3106A-16S-1S (MCN-N5)

**Cable Termination:** PVC jacket, 105 °C rated, overall foil shield; 3 twisted pairs 26 AWG (output signals), plus 2 twisted pairs 24 AWG (input power)

### Mechanical

**Shaft Loading:** 40 lbs. radial, 30 lbs. axial

**Shaft Speed:** 6,000 RPM max.

**Shaft Tolerance:** Nominal -0.0003"/-0.0007"

**Starting Torque:** 2.5 oz-in max.

**Moment of Inertia:** 9.0 x 10<sup>-4</sup> oz-in-sec<sup>2</sup>

**Weight:** 14 oz. max.

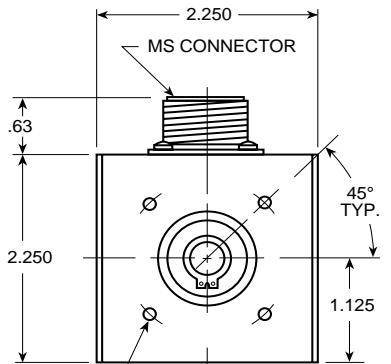
### Environmental

**Operating Temperature:** 0 to +70 °C;

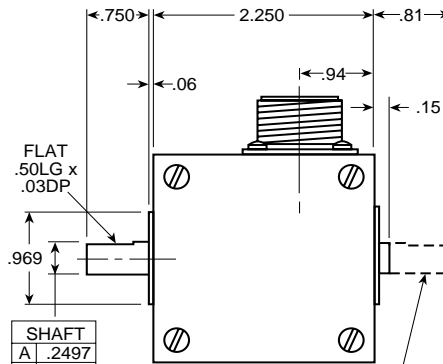
**Storage Temperature:** -40 to +90 °C

**Enclosure:** Environmentally sealed

### Approximate Dimensions (in inches)

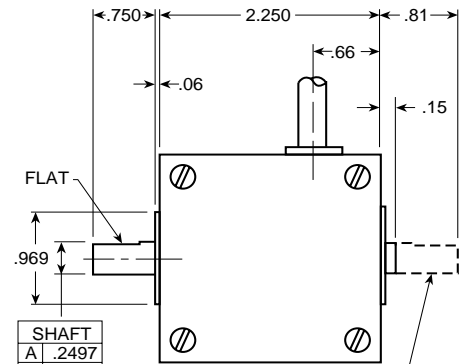


6-32 UNC-2B THREADS x .187 DEEP ON 2.00 DIA. B.C., 4 HOLES ON 3 FACES (FRONT, REAR & BOTTOM).  
FOR MODELS 32M ONLY: M3 x 0.5<sup>6H</sup> THREADS x 5mm DEEP ON A 50.8mm DIA. B.C. ON (3) FACES



OPTIONAL DOUBLE-ENDED SHAFT

### Prewired Cable Models



OPTIONAL DOUBLE-ENDED SHAFT

**Table 1 – Current Sink Output**

Pin	Function	Wire* Color Code	Color Code** Cable Accessory
Current Sink Output			#14006070010
A	Common	BLK	BLK
B	Power Source	RED	RED
C	Case (Ground)	GRN	GRN
D	Signal A	BRN	BRN
E	Signal B	ORN	ORN
F	Supply Common	BLK	BLK

**Table 2 – 7-Pin Line Driver**

Pin	Function	Wire* Color Code	Color Code** Cable Accessory
7-Pin Line Driver Output			#14004310010
A	Signal A	BRN	RED
B	Signal B	ORN	BLU
C	Signal $\bar{A}$	BRN/WH	YEL
D	Power Source	RED	WHT
E	Signal $\bar{B}$	ORN/WH	GRN
F	Common	BLK	BLK
G	Case (Ground)	GRN	SHIELD

**Table 3 – 6-Pin Line Driver**

Pin	Function	Wire* Color Code	Color Code** Cable Accessory
6-Pin Line Driver Output			#14006640010
A	Common	BLK	BLK
B	Power Source	RED	RED
C	Signal A	BRN	BRN
D	Signal $\bar{A}$	BRN/WH	BRN/WH
E	Signal B	ORN	ORN
F	Signal $\bar{B}$	ORN/WH	ORN/WH

\* Wire color codes are referenced here for models that are specified with prewired cable.

\*\* Mating connector/cable assembly described in the Encoder Accessories section of this catalog. Color-coding information is provided here for reference.

### Ordering Information

To order, complete the model number with code numbers from the table below:

Code 1: Model	Code 2: Pulses/Rev	Code 3: Mechanical	Code 4: Output	Code 5: Electrical	Code 6: Termination
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
31 Qube Encoder, Unidirectional 32 Qube Encoder, Bidirectional 32M Metric Qube Encoder, Bidirectional	0001 0025 0002 0030 0003 0050 0004 0060 0005 0100 0006 0120 0007 0200 0008 0250 0009 0300 0010 0500 0012 0600 0015 1000 0018 1200 0020	0 3/8" Double Ended Shaft 1 3/8" Single Ended Shaft 2 1/4" Double Ended Shaft 3 1/4" Single Ended Shaft available when Code 1 = 32M: 4 6mm Double Ended Shaft 5 6mm Single Ended Shaft	0 Single Ended, Table 1 2 Differential, Table 2 available when Code 6 = 0: 4 Differential, Table 3	available when Code 4 is 0: 0 5-26V in, 5-26V Open Collector w/2.2k pull-up out 1 5-26V in, 5-26V Open Collector w/o pull-up out 2 5-26V in, 5V Totem pole out available when Code 4 is 2 or 4: 3 5-26V in, 5V Line Driver out 4 5-26V in, 5-26V Line Driver out	0 MS Connector 1 18" Cable 2 3' Cable 3 6' Cable 4 10' Cable 5 15' Cable