

Series E14

- Servo or face mount (1.44" diameter)
- Up to 2540 PPR with optional marker pulse
- Face mount 2.0" diameter
- Rugged all-metal housing
- Shielded cable standard



COMMERCIAL

APPLICATION/INDUSTRY

The Series E14 is a totally enclosed, easy-to-install, incremental encoder designed for commercial and industrial applications with limited space.

Typical Applications

- Industrial equipment
- Assembly machinery
- Phototypesetters and printers
- Robotics
- Medical diagnostic equipment
- Motor-mounted feedback
- Computer peripherals
- Instrumentation

DESCRIPTION

It is an industry-standard Size 14 (1.44" diameter), servo or face-mount unit with a rugged, metal housing. The Series E14 includes precision bearings, an O-ring seal, and a choice of 1/4" or 1/8" diameter stainless steel shaft. Series E14 incorporates the latest in microelectronic packaging, LED light sources, and matched sensors. Outputs are designed to be compatible with most 5V TTL circuits with options for higher voltage 12 and 15 VDC. Shielded cable is standard. Line drivers with complementary outputs are available for longer cable runs and/or higher ambient electrical noise immunity.

FEATURES AND BENEFITS

Mechanical and Environmental Features

- Durable metal housing
- O-ring housing seal
- Rugged 1/4" or 1/8" diameter stainless steel shafts
- Up to 5000 RPM

Electrical Features

- Up to 1024 pulses per revolution including an optional marker pulse
- Higher electronic operating speed up to 100 kHz
- LED light source and matched sensors
- Choice of 5, 12, or 15 VDC units
- Shielded cable and line driver available for higher electrical noise immunity

SPECIFICATIONS

STANDARD OPERATING CHARACTERISTICS

Code: Incremental
 Resolution: 100 to 2540 PPR (pulses/revolution)
 Format: Two channel quadrature (AB) with optional Index (Z) outputs
 Phase Sense: A leads B for CW shaft rotation as viewed from the shaft end of the encoder
 Accuracy: $\pm 3 \times (360^\circ \div \text{PPR})$ or ± 2.5 arc-min worst case pulse to any other pulse, whichever is less
 Quadrature Phasing: $90^\circ \pm 36^\circ$ electrical
 Symmetry: $180^\circ \pm 18^\circ$ electrical
 Index $90^\circ \pm 25^\circ$ (gated with A and B high)
 Waveforms: Squarewave with rise and fall times less than 1 microsecond into a load capacitance of 1000 pF

ELECTRICAL

Input Power: 5 VDC $\pm 5\%$ at 80 mA max.; 12 or 15 VDC $\pm 10\%$ at 80 mA max.; not including output loads
 Outputs: 7272 (or equivalent) line driver, 40 mA sink and source
 Frequency Response: 100 kHz min.

MECHANICAL

Bearing Life: $(16 \times 10^6 \div \text{RPM})$ hours at max. load
 Shaft Loading: 5 lb. radial, 3 lb. axial max.
 Shaft Speed: 5,000 RPM max.
 Starting Torque
 Shielded Bearing: 0.1 oz-in max. at 25°C
 Sealed Bearing: 0.43 oz-in max. at 25°C
 Running Torque
 Shielded Bearing: 0.08 oz-in max. at 25°C
 Sealed Bearing: 0.42 oz-in max. at 25°C
 Moment of Inertia 3.8×10^{-5} oz-in-sec²
 Weight: 3.0 oz. max.

ENVIRONMENTAL

Operating Temperature 0 to +70°C
 Storage Temperature -25 to +70°C
 Humidity to 98% without condensation
 Enclosure Rating: NEMA 12/IP54 (dirt tight, splashproof) Optional: NEMA 3/IP64 rating available (consult factory)

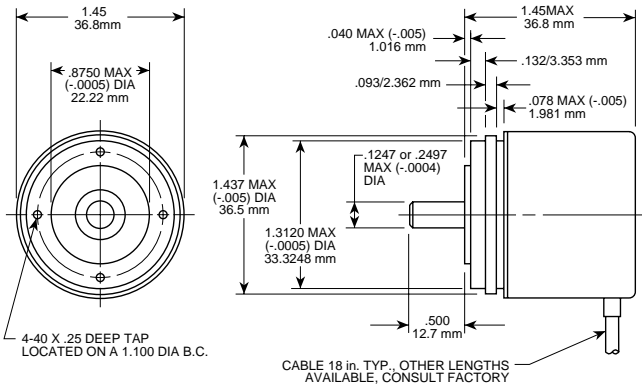
Electrical Connections

Wire Color Code	Function		
	Standard Outputs 5, 12, or 15 VDC	w/ Line Driver Outputs	
		Unidirectional	Bidirectional
Red	Power Source	Power Source	Power Source
Black	Common	Common	Common
White	Signal A	Signal A	Signal A
Green	Signal B (if used)	Signal A	Signal B
Orange	Signal Z (if used)	No Connection	Signal B
Blue	No Connection	No Connection	Signal A
Shield	Floating	Floating	Floating
White/Black	--	--	Signal Z (if used)
Red/Black	--	--	Signal Z (if used)

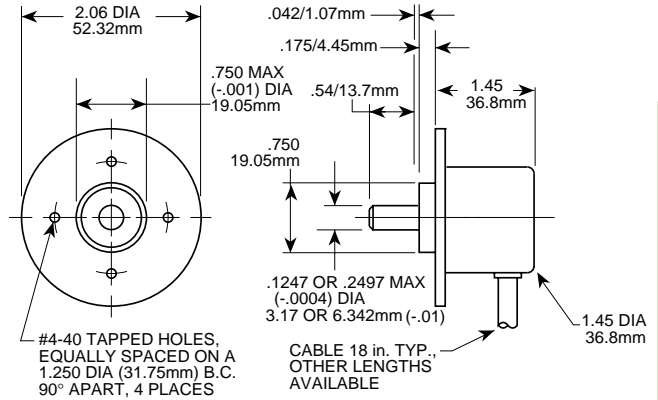
Series E14

Approximate Dimensions (inches/mm)

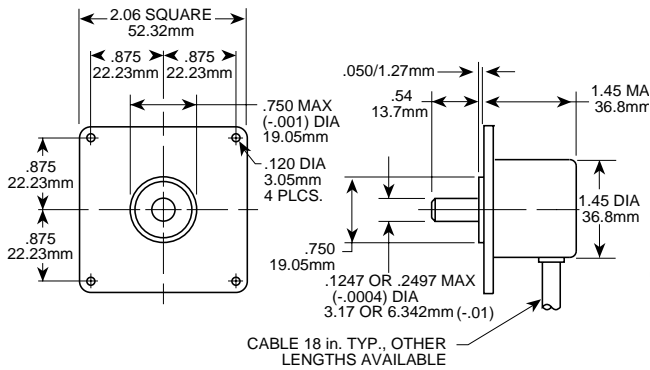
Code 3: 0



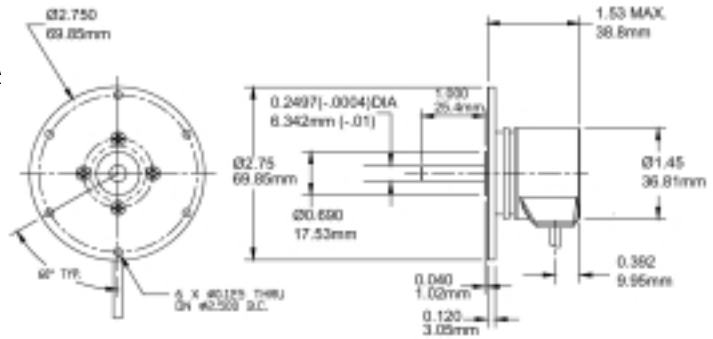
Code 3: 1



Code 3: 2



Code 3: 3



Ordering Information

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

Code 1: Model	Code 2: Pulses/Rev	Code 3: Mounting	Code 4: Mechanical	Code 5: Output	Code 6: Electrical	Code 7: Termination
E14	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
E14 Size 14, Light Duty Enclosed	0100 1000 0200 1024 0240 1250 0250 1500 0256 2000 0300 2048 0360 2500 0400 2540 0500 0600 0720 0750 0900	0 Size E14 1 Size E20 Servo 2 Size E20 Flange Available when code 4 is 2 3 Size EC80 Flange	0 1/4" Shaft, Sealed Bearing 1 1/8" Shaft, Sealed Bearing 2 1/4" Shaft, Shielded Bearing 3 1/8" Shaft, Shielded Bearing	0 Single Ended, Unidirectional 2 Single Ended, Bidirectional, no Index 3 Single Ended, Bidirectional, with Index 4 Differential, Unidirectional 6 Differential, Bidirectional, no Index 7 Differential, Bidirectional, with Index	0 5 VDC 1 12 VDC 2 15 VDC	0 18" Cable 1 3' Cable 2 6' Cable 3 10' Cable 4 15' Cable