

Installation Instructions for the 510 Series Mechanical Encoders

Honeywell

Issue A

50099568

GENERAL INFORMATION

The 510 Series products are manually operated, rotary encoders that supply a two-bit gray code output for relative reference applications or a four-bit gray code output for absolute electrical reference applications. They combine the feel of a rotary switch with a digital output.

The “L” channel leads the “R” channel by 90° electrically in the clockwise position. This series has continuous electrical travel and has a rotational life of more than 100,000 shaft rotations with a positive detent feel.

These small encoders are commonly used in limited-space, panel-mounted applications where the need for costly, front-panel displays can be completely eliminated. Digital gray code outputs may eliminate the need for analog/digital converters.

Table 1. Electrical Specifications

Characteristic	Parameter				
	Termination B 2-bit	Termination B 4-bit	Termination C 2-bit	Termination C 4-bit	Termination D
Output	2-bit gray code, channel L leads channel R by 90° electrically CW	4-bit gray code, absolute electrical position output	2-bit gray code, channel L leads channel R by 90° electrically CW	4-bit gray code, absolute electrical position output	2-bit gray code, channel L leads channel R by 90° electrically CW
Closed circuit resistance	5 Ohm max.				
Open circuit resistance	100 kOhm min.				
Contact rating	250 mA at 28 Vdc max.				
Switching loads: 14 Vdc 115 Vac	150 mA 1.5 mA				
Dielectric	1000 Vac at sea level				
Rotational life	100,000 cycles at rated load, typ.				
Electrical travel	360°/continuous				

Table 2. Mechanical Specifications

Characteristic	Parameter				
	Termination B 2-bit	Termination B 4-bit	Termination C 2-bit	Termination C 4-bit	Termination D
Mechanical travel	360°/continuous				
Detent positions	16, 24, or 36 ¹	16	16, 24, or 36 ¹	16	16
Actuation torque	21 mN m to 23 mN m [3 in-oz to 5 in-oz]				
Operating speed	50 rpm max.				
Termination type	formed, C-30 type		straight, B-110 type		formed, C-30 type with mounting bracket
Material: housing, bushing, shaft terminals PCB	glass-reinforced thermoplastic tin-plated brass FR4				

See Order Guide Tables on pp. 3-5.

Table 3. Environmental Specifications

Characteristic	Parameter				
	Termination B 2 bit	Termination B 4 bit	Termination C 2 bit	Termination C 4 bit	Termination D
Operating temperature	-40 °C to 105 °C [-40 °F to 221 °F]				
Storage temperature	-55 °C to 120 °C [-67 °F to 248 °F]				
Sealing	Controls are not sealed for board washing. Consult Honeywell for details.				

Figure 1. Output Information

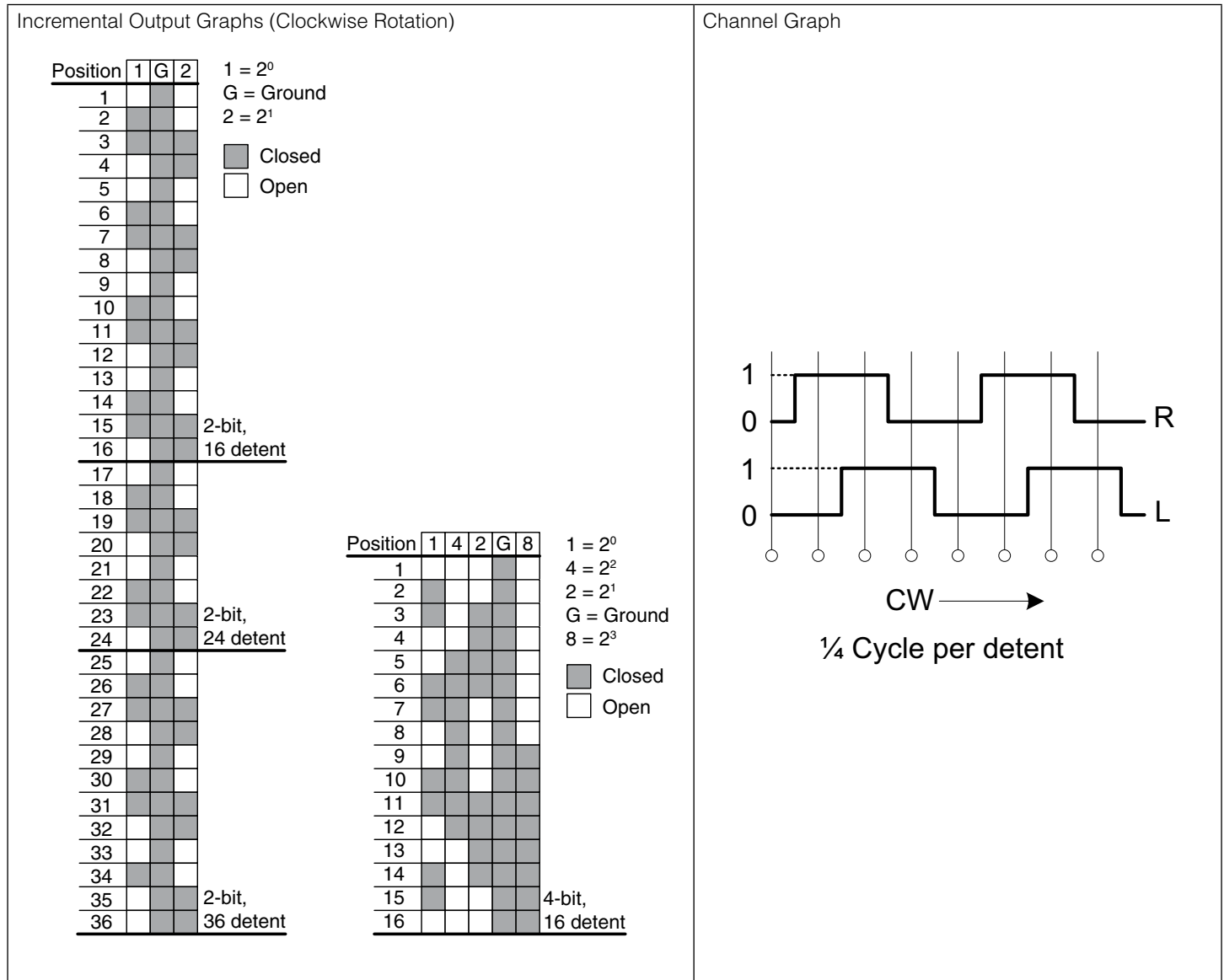


Table 510-A Order Guide

Catalog Listing	Electrical	Mechanical	RoHS Compliant	Mounting Hardware
	Number of Bits	Detent Positions		
510E1A48F204PB	2	16	yes	none
510E1A48F206PB	2	24	yes	none
510E1A48F209PB	2	36	yes	none

Dimensional Drawing (For reference only: mm [in].)

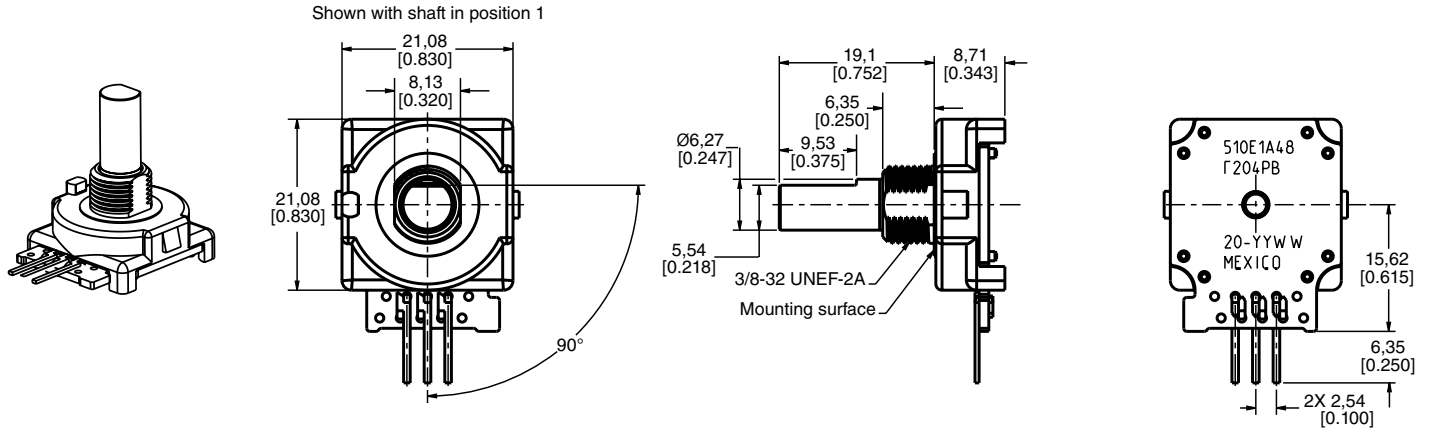


Table 510-B Order Guide

Catalog Listing	Electrical	Mechanical	RoHS Compliant	Mounting Hardware
	Number of Bits	Detent Positions		
510E1A48F416PB	4	16	yes	none

Dimensional Drawing (For reference only: mm [in].)

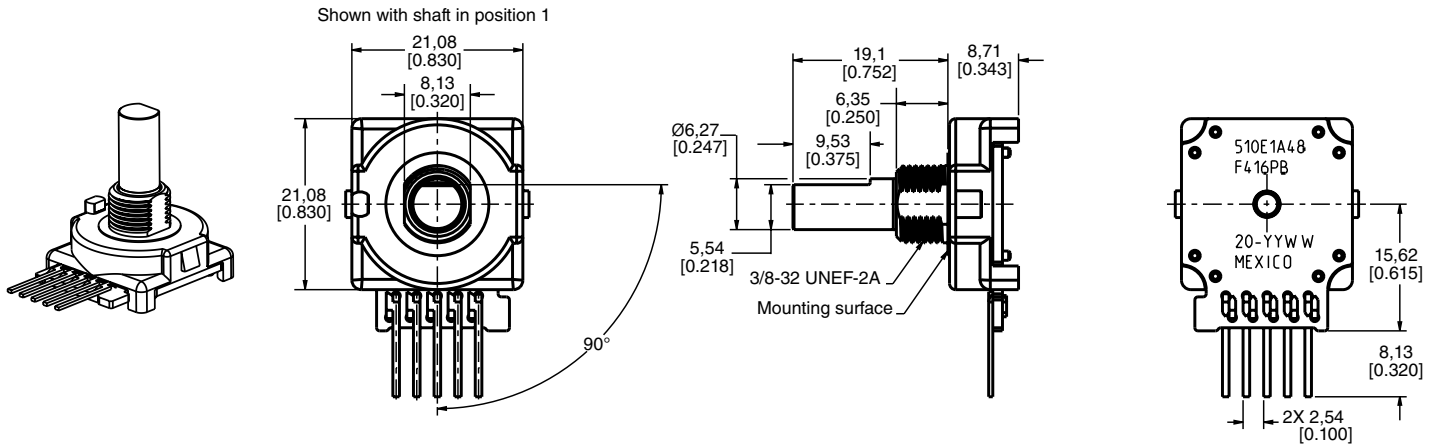


Table 510-C Order Guide

Catalog Listing	Electrical	Mechanical	RoHS Compliant	Mounting Hardware
	Number of Bits	Detent Positions		
510E1A48F204PC	2	16	yes	none
510E1A48F206PC	2	24	yes	none
510E1A48F209PC	2	36	yes	none

Dimensional Drawing (For reference only: mm [in].)

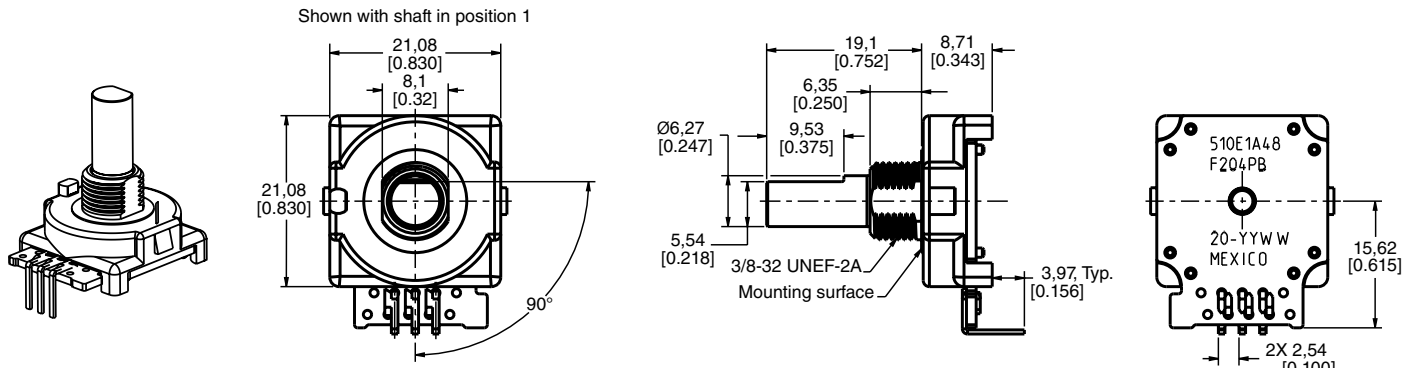


Table 510-D Order Guide

Catalog Listing	Electrical	Mechanical	RoHS Compliant	Mounting Hardware
	Number of Bits	Detent Positions		
510E1A48F416PC	4	16	yes	none

Dimensional Drawing (For reference only: mm [in].)

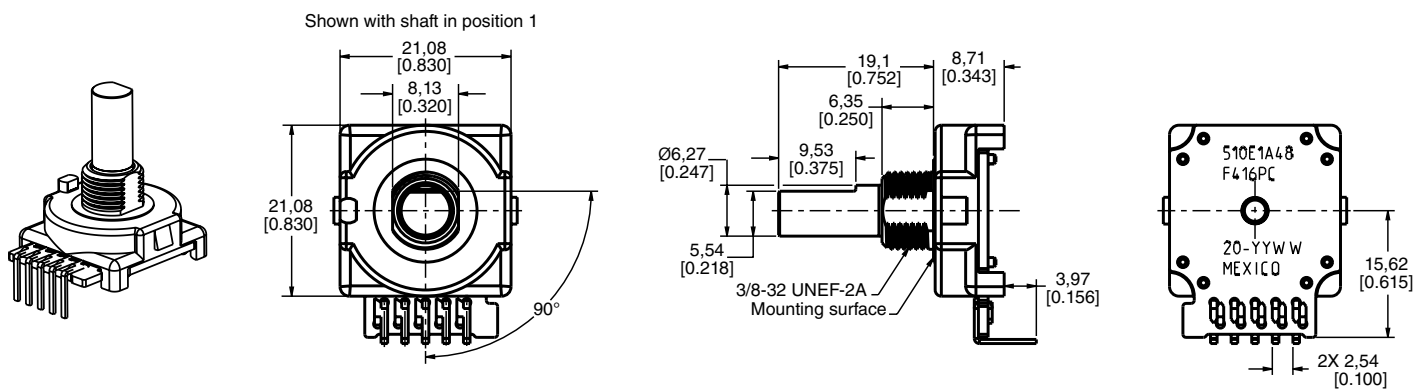


Table 510-E Order Guide

Catalog Listing	Electrical	Mechanical	RoHS Compliant	Mounting Hardware
	Number of Bits	Detent Positions		
510E1A48F209PC	2	36	yes	mounting bracket

Dimensional Drawing (For reference only: mm [in.])

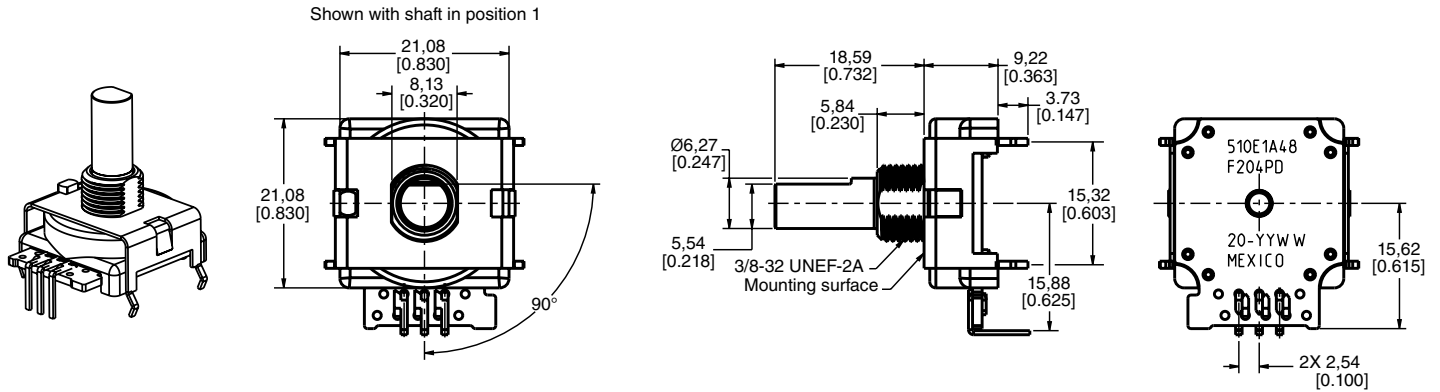
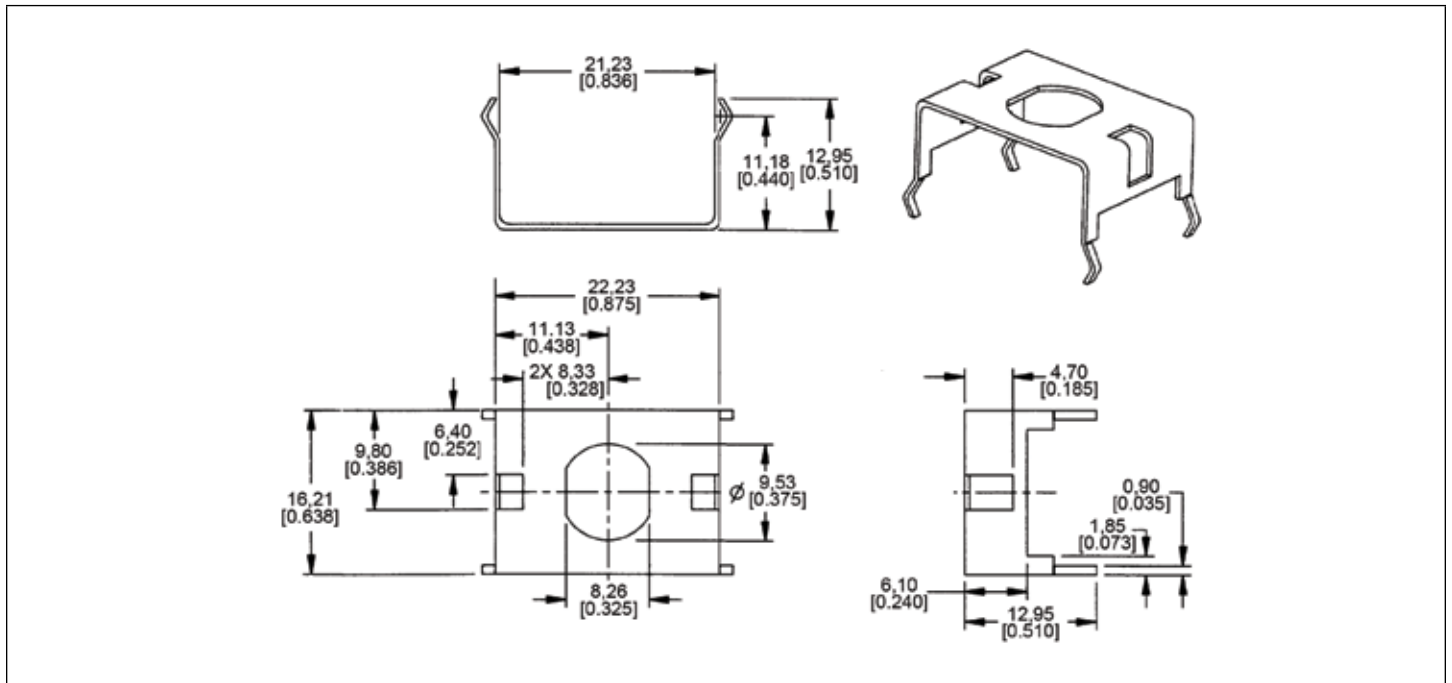


Figure 2. 510BKT Mounting Bracket (available separately)



▲ WARNING
PERSONAL INJURY

DO NOT USE these products as safety or emergency stop devices or in any other application where failure of the product could result in personal injury.

Failure to comply with these instructions could result in death or serious injury.

WARRANTY

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship. Honeywell's standard product warranty applies unless agreed to otherwise by Honeywell in writing; please refer to your order acknowledgement or consult your local sales office for specific warranty details. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace, at its option, without charge those items it finds defective. **The foregoing is buyer's sole remedy and is in lieu of all warranties, expressed or implied, including those of merchantability and fitness for a particular purpose. In no event shall Honeywell be liable for consequential, special, or indirect damages.**

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