



Representative photograph, actual product appearance may vary.

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## 510E1A48F416PC

**510 Series Encoder, Mechanical 16 pulse/rev/channel 4-bit Gray code**

### Features

- Cost effective, eliminates need for A/D converters
- High resolution up to 36 positions
- Stability from -40 °C to 105 °C [-40 °F to 221 °F]
- Horizontal and vertical mounting

### Typical Applications

- Level control
- Cursor control
- Frequency control
- Temperature control
- Time Control
- Position sensing

### Description

The 510 Series controls are manually operated, rotary, mechanical encoders that provide a two-bit gray code for relative reference applications and a four-bit gray code for absolute electrical reference applications. The "L" channel leads the "R" channel by 90 deg. electrically in the Clockwise position. It features continuous electrical travel and has a rotational life of more than 100,000 shaft revolutions with a positive detent feel.

This series is relatively small in size measuring 21,08 mm [0.83 in] - square by 8.71 mm [0.343 in] - deep. They 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 eliminate the need for A/D converters.

#### Product Specifications

<b>Encoder Type</b>	Mechanical
<b>Pulse Per Rev</b>	16 cycles/rev
<b>Detents</b>	16
<b>Pulse</b>	1 cycle per detent
<b>Dome Switch</b>	No
<b>Output</b>	4-bit gray code, absolute electrical position output
<b>Contact resistance</b>	5 Ohms max.
<b>Open Resistance</b>	100 kOhms min.
<b>Contact Rating</b>	28 Vdc max at 250 mA
<b>Jitter (Bounce)</b>	5 ms/cycle at 15 RPM

<b>Dielectric Withstanding Voltage</b>	1000 Vac at sea level
<b>Electrical Travel</b>	Continuous
<b>Operating Speed</b>	50 RPM max.
<b>Operating Torque</b>	0,0216 Nm to 0,036 Nm [3.0 oz in to 5.0 oz in]
<b>Panel Mounting Torque</b>	1,13 Nm [7.0 lbs] max.
<b>Body Size (Single Module)</b>	21,1 mm [0.83 in] square, •,127 mm [0.005 in]
<b>Terminals</b>	PC terminals bent back Type C-30 (Vertical mount)
<b>Housing</b>	Molded thermoplastic
<b>Mechanical Travel</b>	Continuous
<b>Rotational Life</b>	100,000 detented cycles at rated load typical (1 cycle=720 degrees)
<b>Shaft Pull Force</b>	4,536 kg [10 lbs] max.
<b>Shaft Side Load Force</b>	1,13 Nm [7 lbs in] max.
<b>Shaft Material</b>	Plastic
<b>Shaft Diameter</b>	6,35 mm [0.25 in]
<b>Shaft length</b>	19,05 mm [0.75 in]
<b>Bushing Material</b>	Plastic
<b>Bushing Diameter</b>	9,53 mm [0.375 in] x 32 NEF-2A
<b>Bushing length</b>	6,35 mm [0.25 in]
<b>Operating Temperature</b>	-40 °C to 105 °C [-40 °F to 221 °F]
<b>Storage Temperature</b>	-55 °C to 120 °C [-67 °F to 248 °F]
<b>Humidity</b>	90% RH at 25 °C [77 °F] Insulation resistance 1 MOhm max.; Per MIL-STD 202, Method 106C
<b>Shock</b>	Per MIL-STD-202; method 213, Condition G
<b>Series Name</b>	510 Series
<b>Availability</b>	Global
<b>UNSPSC Code</b>	30211929
<b>UNSPSC Commodity</b>	30211929 Encoders

*Due to regional agency approval requirements, some products may not be available in your area.  
Please contact your regional Honeywell office regarding your product of choice.*