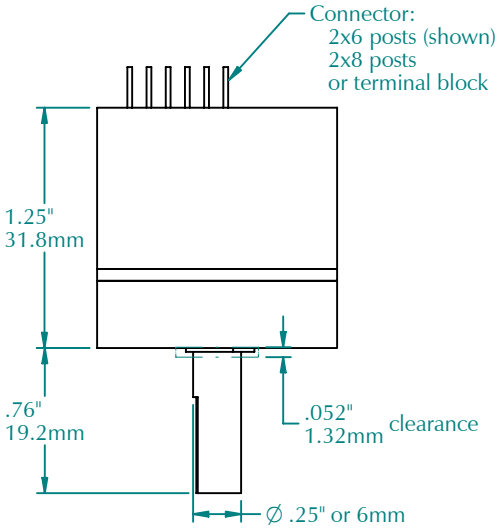
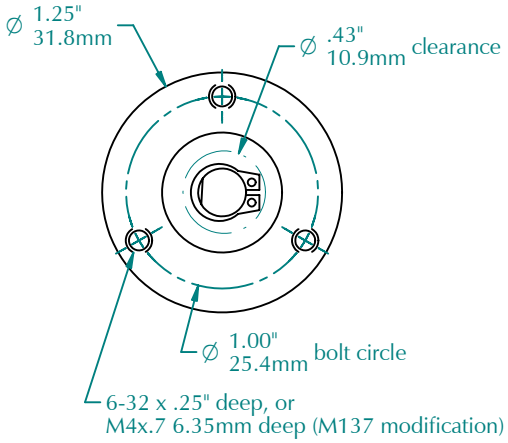
# MODEL SR12 — Absolute Shaft Encoder

## FEATURES

- **7, 8, 9, or 10 bit resolution**
- **Up to 1024 positions/revolution, single turn**
- **Parallel, Serial, or Analog Outputs**
- **Digital Output: Natural Binary or Gray Code**
- **Analog Output: 0-10 vdc or 4-20 ma**
- **Supply: 5 vdc (12-30 vdc for analog)**
- **1/4" or 6mm Shaft Diameters**
- **ESD Protected**
- **Custom Models Available**

## DIMENSIONS

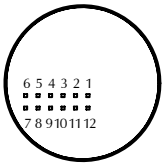



## SPECIFICATIONS

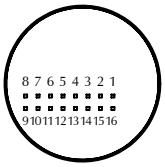
### Output Configurations

**Digital Parallel (7,8,9 bit):** 2x6 posts with .1" spacing. 5vdc totem-pole outputs.



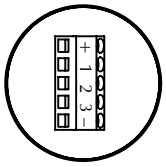

| Pin | Function | Pin | Function |
|---|---|---|---|
| 1 | Supply | 12 | Common |
| 2 | $2^3$ | 11 | $2^4$ |
| 3 | $2^2$ | 10 | $2^5$ |
| 4 | $2^1$ | 9 | $2^6$ |
| 5 | $2^0$ | 8 | $2^7$ |
| 6 | DataReady | 7 | $2^8$ |

**Digital Parallel (10 bit):** 2x8 posts with .1" spacing. 5vdc totem-pole outputs.



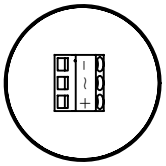

| Pin | Function | Pin | Function |
|---|---|---|---|
| 1 | reserved | 16 | reserved |
| 2 | reserved | 15 | $2^9$ |
| 3 | Supply | 14 | Common |
| 4 | $2^3$ | 13 | $2^4$ |
| 5 | $2^2$ | 12 | $2^5$ |
| 6 | $2^1$ | 11 | $2^6$ |
| 7 | $2^0$ | 10 | $2^7$ |
| 8 | DataReady | 9 | $2^8$ |

**Digital Serial (SPI):** 5 position terminal block. 5vdc totem-pole outputs.




| Terminal | Function |
|---|---|
| + | 5vdc supply |
| 1 | Slave Select |
| 2 | Clock Input |
| 3 | Data Output |
| – | Common |

**Analog:** 3 position terminal block. 12-30vdc supply with 0-10vdc or 4-20ma output.




| Terminal | Function |
|---|---|
| – | Common |
| ~ | analog output |
| + | 12-30vdc supply |

### Electrical

**Supply Voltages:** (specify when ordering)
5 vdc ± 5%, or 12-30 vdc (analog only)
**Current:** 25 ma max (no load)
**Operating Temperature:** -40° to 70° C
**Output Codes:** Gray code, Natural binary, 0-10vdc analog, or 4-20ma analog
**Interrogation Rate:** 2KHz (minimum)
Note: The rate at which the code disk is sampled. Regardless of the rotational speed, this determines the maximum rate the outputs change. *Consult factory for details.*
**Resolution:** (specify when ordering)
128, 256, 512, 1024 positions/revolution
**Accuracy:** ± 1/2 bit digital, ±1 bit analog
**Rotation:** (specify when ordering)
Counts can increase with clockwise (CW) rotation as viewed from shaft end, or they can decrease clockwise.
**Digital Output Logic Levels:**
— Logic "0": low voltage (0.6 volts max.)
— Logic "1": high voltage (4.0 volts min.)
**DataReady Output:** Normally high, goes low while the outputs are changing (7 µsec). Stays low to indicate an error condition.
**0-10vdc Analog Output Levels:**
— Zero code error: 20mv
— Full-scale error: 125mv
— Relative accuracy: ± 10mv
**Output Circuits:**
— Totem-pole: 5 ma. max source and 6 ma. max sink current
— 0-10vdc voltage output
— 4-20ma current output

### Mechanical

**Bearings:** ball bearings, shielded
**Shaft Loading:** 10 lb. (4.5 kg) axial and radial
**Bearing Life:** 52 x 1,000,000/rpm = hours
**Weight:** 1.75 oz. (50 gm)
**Materials:** Anodized aluminum housing, 303 stainless steel shaft, epoxy potting

## MODEL NUMBER

| SR12 | | – | | | | / | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Model Number** | **Shaft Diameter:** blank for 1/4", M6=6mm | | **Resolution:** 128, 256, 512, or 1024 | **Output Code:** A=0-10vdc, C=4-20ma, G=Gray Code, N=Natural Binary | **Rotation:** leave blank to increase CW, D=counts decrease for CW rotation. | | **Supply Voltage:** 5 (digital output), or 12-30 (analog output) | **Special Features:** SPI=Serial Peripheral Interface M___=Modification Number Call or see our website for more information. | **Accessories:** leave blank for no accessories. Call or see our website for more information. |

Example: **SR12-512N/5** - 1/4" shaft, 512 resolution, natural binary code, counts increase for CW rotation, 5vdc supply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