## Features

Single turn/multi-turn absolute encoder (22 Bit ST / 24 Bit MT)
- High resolution, high accuracy, high performance
- BISS C or SSI communication protocols
- Up to 10 mm thru-bore or blind hollow bore
- Optional extended temperature range -40° C to 120° C
- Internal temperature sensor (with BISS C protocol)
- Optional battery/backup power interface for data retention in the absence of primary power

This high-performance thru-bore absolute encoder offers BISS C or SSI communication protocols in a compact mechanical package. Reflective optical technology guarantees high performance and accuracy. The Model A36R includes customer-accessible non-volatile memory for storing motor name plate data in servo applications. The XXL multi-turn option adds a low power turns-counting circuit offering a variety of backup options including EPC’s embedded battery cable, which has a long-life battery built directly into the controller-end of the cable. The number of possible configurations makes this 36 mm thru-bore or blind hollow bore absolute encoder versatile for many applications.

## Common Applications

Robotics, Servo and Stepper Motors, Autonomous Guided Vehicles, Telescopes, Antennas, Wind Turbines, Medical Scanners, Elevators, Lifts, Rotary and X/Y Positioning Tables, Linear Actuators

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### Model A36R订购指南

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<td></td>
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<td>RMH</td>
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**Bore Size**
- 4 mm
- 5 mm
- 6 mm
- 8 mm
- 10 mm
- 3/16", 0.1875" for A3
- 1/4", 0.2500" for A4
- 5/16", 0.3125" for A5
- 3/8", 0.3750" for A6

**Mounting**
- SA 1.812" (46 mm) Two-hole flex mount
- SB 1.142" (29 mm) Slotted flex mount
- SC 1.2795" (32.5 mm) Slotted flex mount
- SD 1.575" (40 mm) Slotted flex mount
- SF 1.812" (46 mm) Slotted flex mount

**Multi-turn Resolution**
- 00N Single turn only
- XXN XX = Multi-turn Bits (01-24), and N = Normal power consumption
- XNL XX = Multi-turn Bits (01-24), and L = Low power circuit for long term battery backup

**Optional Features**
- Leave blank for standard options

**Notes:**
1. The Normal power option is intended for applications where multi-turns counting data does not need to be retained after a power interruption. This option does not include the low power circuit required to maintain turns counting during a power interruption.,g. See Input Voltage under Specifications (next page) for max temperature ratings.
2. For fixed cable lengths, enter F (feet) or M (meters) plus cable length. Example: F02 = 2 feet of cable or M02 = 2 meters of cable. For mating connectors, cables, and cord sets see Model A36R at encoder.com.
3. Only available for blind hollow bore Model A36RHB with fixed cable. Not available for RMH connector.

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1-800-366-5412  |  encoder.com  |  sales@encoder.com
MODEL A36R SPECIFICATIONS

### Electrical
- **Input Voltage**: 4.75-24 VDC max for temp up to 85°C
- **Power Consumption**: 2.0 W max
- **Electrical Protection**: Transient Overvoltage, Reverse, and Short Circuit
- **Code**: Gray or Binary for SSI; Binary for BiSS C
- **Resolution (Single)**: 0.01 to 22 bit
- **Resolution (Multi)**: 0.01 to 24 bit, and battery backed option
- **Input Current**: ≤ 100 mA at No Load
- **Input Voltage**: 4.75-5.5 VDC max for temp > 100°C
- **Input Power Supply Voltage**: Vdc
- **Input Voltage**: ≤ 5 μA with shaft movement
- **Internal Temp. Sensor (TJ)**: -40°C to 140°C (not accessible with SSI protocol)
- **Sensing Method**: Optical
- **Accuracy**: Better than 45 ArcSec from True Position
- **Repeatability**: ±20 ArcSec between repeat moves to any position
- **Coefficient of Friction**: 0.13 mm [0.005”]
- **Rolling Bearing**: 1.9 mm [0.07”]
- **Electrical**: ≤ 0.005 mm [0.0002”]
- **Angular Accuracy**: ± 0.001 mm [0.00004”]
- **Linearity**: ± 0.005 mm [0.0002”]
- **Temperature Coefficient**: ± 0.005 mm [0.0002”]
- **Environmental**: (9女)" to 120°C (see Input Voltage for limitations)
- **Storage Temp**: -20° to 85°C
- **Humidity**: 98% RH non-condensing
- **Vibration**: 20 g, 10 to 2000 Hz (according to IEC 60068-2-6)
- **Shock**: 100 g @ 11 ms duration
- **Sealing**: IP50 (DIN EN 60529), IP64 optional

### MOUNTING AND INSTALLATION KIT

*Order appropriate no charge Mounting and Installation Kit for SB, SC, or SD option. Each kit contains 10 screws for mounting 5 encoders.*

176150-01  Installation Kit, 4-40 buttonhead screws with 0.062” shortened hex wrench
176149-01  Installation Kit, M2.5 buttonhead screws with 1.5 mm shortened hex wrench
**WIRING TABLES**

**Single turn or multi-turn N (Normal Power)**

<table>
<thead>
<tr>
<th>Header Pin #</th>
<th>Function</th>
<th>Wire Color</th>
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<tbody>
<tr>
<td>1</td>
<td>NC</td>
<td>--</td>
</tr>
<tr>
<td>2</td>
<td>NC</td>
<td>--</td>
</tr>
<tr>
<td>3</td>
<td>+VDC</td>
<td>White</td>
</tr>
<tr>
<td>4</td>
<td>Com</td>
<td>Violet</td>
</tr>
<tr>
<td>5</td>
<td>Position Preset</td>
<td>Brown</td>
</tr>
<tr>
<td>6</td>
<td>Shield**</td>
<td>Bare</td>
</tr>
<tr>
<td>7</td>
<td>Data -</td>
<td>Orange</td>
</tr>
<tr>
<td>8</td>
<td>Data +</td>
<td>Blue</td>
</tr>
<tr>
<td>9</td>
<td>Clock -</td>
<td>Yellow</td>
</tr>
<tr>
<td>10</td>
<td>Clock +</td>
<td>Green</td>
</tr>
</tbody>
</table>

*Pins are electrically connected within encoder.

†For Single turn and Normal power multi-turn encoders, the external power wires (red and black) are not used.

**CE Option: Cable shield (bare wire) is connected to internal case.

**Multi-turn L (Low Power)**

<table>
<thead>
<tr>
<th>Header Pin #</th>
<th>Function</th>
<th>Wire Color</th>
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<tbody>
<tr>
<td>1</td>
<td>VBAT +</td>
<td>Red†</td>
</tr>
<tr>
<td>2</td>
<td>VBAT -</td>
<td>Black†</td>
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<tr>
<td>3</td>
<td>+VDC</td>
<td>White</td>
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<tr>
<td>4</td>
<td>Com*</td>
<td>Violet</td>
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<tr>
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<tr>
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<td>Clock -</td>
<td>Yellow</td>
</tr>
<tr>
<td>10</td>
<td>Clock +</td>
<td>Green</td>
</tr>
</tbody>
</table>

**CONNECTORS**

Radial Mount Header (RMH option, shown)
Molex part # 5055671031

Mating Connector
Molex part # 5055651001

**CABLE OPTIONS**

**Power-ready cable**
For multi-turn low power (L) option, user supplies external power.

**Embedded battery cable**
For multi-turn low power (L) option with Embedded Battery Cable option (EB), battery supplies external power.

Battery notes:
1. The battery section of the cable is rigid and non-flexible.
2. Battery is located close to the customer end of the cable, and is housed in a protective enclosure secured directly to the cable.
3. Maximum rated battery operating temperature is 85°C.
4. Minimum total cable length for EB option is 30 cm (1 foot).

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