# FLANGE MOUNT ROTARY PULSE GENERATOR

## HEAVY-DUTY PRECISION ENCODERS

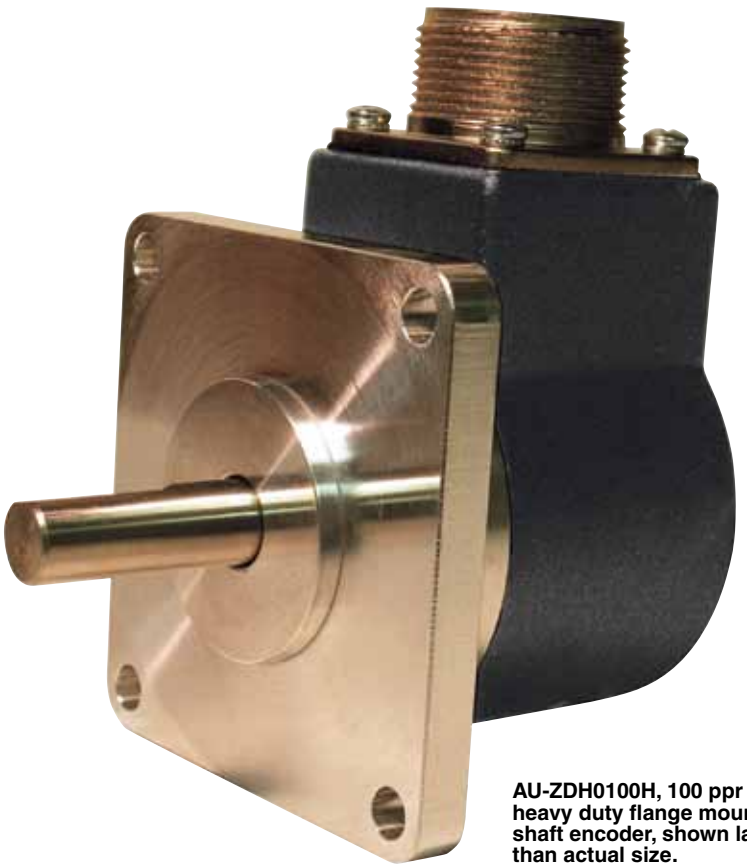
*ZDH Series*

- **High Precision Accuracy**
- **NPN Open Collector Output**
- **9.5 mm (0.375") Shaft Diameter**
- **Quadrature Outputs with Indexing**
- **NEMA 4, 13 (IP66)**

The ZDH Series of sensors are heavy-duty, extremely rugged, reliable, yet compact encoders designed for harsh factory and plant floor environments. These encoders are flange mount and conform to NEMA 4, and 13 (IP66) standards.

## Applications

Typical applications include motion control feedback, machine control, process control, elevator controls, conveyors, textile equipment, robotics and food processing.



**AU-ZDH0100H, 100 ppr heavy duty flange mount shaft encoder, shown larger than actual size.**

## SPECIFICATIONS

### ELECTRICAL

**Supply Voltage:** 4.75 to 28 Vdc, 100 mA maximum with no output load
**Outputs:** NPN open collector transistor, 100 mA maximum current
**Maximum Frequency:** Up to 1 MHz
**Index:** NPN open collector transistor. Positive pulse once per revolution, centered over output channel A
**Input Ripple:** 100 mV peak to peak at 0 to 100 KHz
**Noise Immunity:** Tested to BS EN61000-4-2; IEC801-3; BS EN61000-4-4; DDENV 50141; DDENV 50204; BS EN55022; BS EN61000-6-2; BS EN50081-2
**Symmetry:**
- **1 to 6000 CPR:** 180° (±18°) electrical at 100 KHz output
- **6001 to 20,480 CPR:** 180° (±36°) electrical

**Quad Phasing:**
- **1 to 6000 CPR:** 90° (±22.5°) electrical
- **6001 to 20,480 CPR:** 90° (±36°) electrical

**Min Edge Separation:**
- **1 to 6000 CPR:** 67.5° electrical at 100 KHz output
- **6001 to 20,480 CPR:** 54° electrical
- **>20,480 CPR:** 50° electrical

**Rise Time:** Less than 1 microsecond
**Accuracy:**
- **200 to 1999 CPR:** 0.017° mechanical (1.0 arc minutes)
- **2000 to 3000 CPR:** 0.01° mechanical (0.6 arc minutes)

### MECHANICAL

**Maximum Mechanical Speed:** 8000 RPM
**Shaft Diameter:** 9.5 mm (0.375")
**Radial/Axial Shaft Load:** 80 lbs. maximum rated load of 20 to 40 lbs. for bearing life of 1.5 x 109 revolutions
**Starting Torque:** 21.18 N-m (3.0 oz-in.)
**Moment Of Inertia:** 3.66 x 10-3 N-mm-sec$^2$ (5.2 x 10-4 oz-in-sec$^2$)
**Connector Type:** 7-pin MS type (MIL-C-5015)
**Housing:** Black non-corrosive finish
**Mounting:** 2.0" flange mount
**Weight:** 311.8 g (11 oz)

### ENVIRONMENTAL CONDITIONS

**Operating Temperature:** 0 to 70°C (32 to 158°F)
**Storage Temperature:** -25 to 85°C (-13 to 185°F)
**Humidity:** 98% RH non-condensing
**Shock:** 75 g @ 11 msec duration
**Sealing:** NEMA 4, 13 (IP66) with shaft seal

## Open Collector Output Wiring

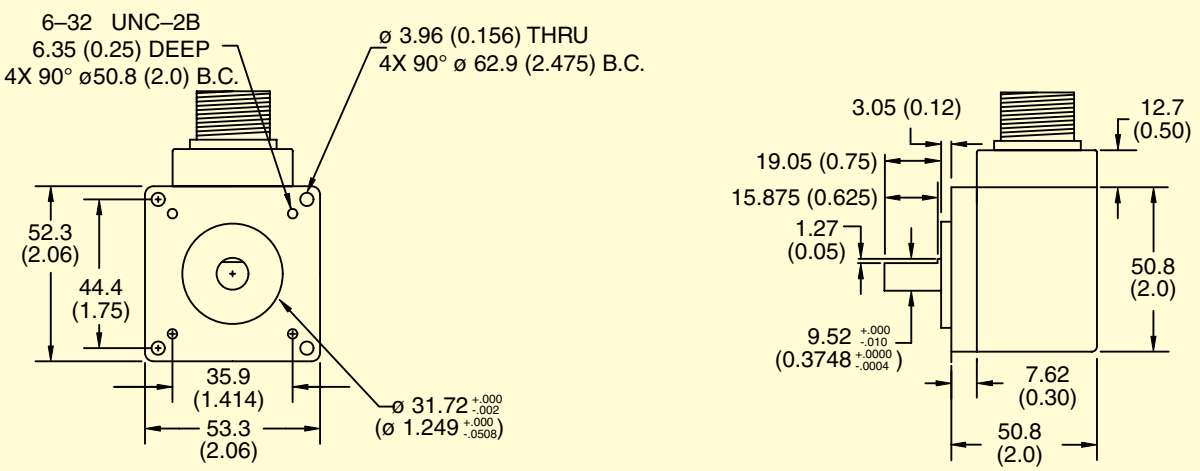
The ZDH Series of sensors have open collector outputs. An open collector output brings the uncommitted collector of the encoder switching device to the external world. Because the collector element is not associated with the sensor supply voltage, the sensor output collector may be "pulled up" to external voltages different than the encoder supply voltage (40 Vdc maximum).

| FUNCTION | PIN | WIRE COLOR |
|---|---|---|
| **+Vdc** | A | RED |
| **COMMON** | B | BLACK |
| **DATA A** | C | WHITE |
| **DATA B** | D | GREEN |
| **INDEX Z** | E | ORANGE |
| **CASE GROUND** | F | BARE WIRE |

NPN open collector outputs are current sinking devices. An output signal will not be generated unless a pull-up resistor is connected from the open-collector to the positive side of an external supply. The same supply can be used for powering the unit and for the pull-up resistor.

**Dimensions: mm (inch)**

### ZDH




## To Order

| MODEL NUMBER | DESCRIPTION |
|---|---|
| **AU-ZDH0100H** | 100 ppr, 51 mm (2") flange mount rotary pulse encoder |
| **AU-ZDH1000H** | 1000 ppr, 51 mm (2") flange mount rotary pulse encoder |

## ACCESSORIES

| MODEL NO. | DESCRIPTION |
|---|---|
| **AU-CCBRPG00** | 7-pin MS connector |
| **AU-CCBRPG02** | 7-pin MS connector with 3.05 m (10') long 24 AWG conductor with drain |
| **AU-CCBRPG03** | 7-pin MS connector with 6.1 m (20') long 24 AWG conductor with drain |
| **AU-RPGFC002** | Flexible shaft coupling, 25 mm (1") long, 0.250 - 0.375" |
| **AU-RPGFC003** | Flexible shaft coupling, 25 mm (1") long, 0.375 - 0.375" |
| **AU-RPGFC004** | Flexible shaft coupling, 25 mm (1") long, 0.375 - 0.500" |
| **AU-RPGFC006** | Flexible shaft coupling, 25 mm (1") long, 0.375" - 6 mm |

***Ordering Example: AU-ZDH0100H,*** *2" flange mount rotary pulse generator,* ***AU-RPGFC003,*** *flexible shaft coupling, 0.375-0.375", and* ***AU-CCBRPG00,*** *7-pin MS connector.*