

WDD35D4

Absolute Angular Displacement Sensor

Precision potentiometric rotary-position sensor with continuous analog output



Parameter	Specification
Mechanical rotation	360°
Electrical rotation	345°
Linearity	±0.1%
Resolution	Continuous / effectively infinite
Mechanical life	20,000,000 revolutions
Operating & storage temperature	-55°C to +125°C

Product Overview

The WDD35D4 is an absolute angular displacement sensor designed to convert rotary shaft position into a continuously varying analog electrical signal. The supplied product information emphasizes high linearity, very fine continuous resolution, low rotational torque, long mechanical life, and flexible mechanical mounting.

1. Key Features

- Absolute angular-position feedback using a potentiometric sensing element.
- 360° mechanical rotation with 345° effective electrical rotation.
- Continuous / effectively infinite angular resolution.
- Specified linearity of $\pm 0.1\%$.
- 20 million revolution mechanical-life specification.
- Low rotational torque: $<1 \text{ mN}\cdot\text{m}$.
- Rated power: 2 W.
- Dielectric withstand: 500 V for 1 minute.
- IP40 protection rating.
- Wide operating and storage temperature range: -55°C to $+125^{\circ}\text{C}$.
- Compact $\varnothing 36.5 \text{ mm}$ cylindrical sensor body.
- Three-terminal interface: GND, VCC and Signal.
- Flat and L-shaped sensor-holder options shown in the supplied product material.

2. Technical Specifications

Parameter	Specification
Model	WDD35D4
Product type	Absolute angular displacement sensor
Mechanical rotation	360°
Electrical rotation	345°
Resolution	Continuous / effectively infinite
Linearity	$\pm 0.1\%$
Mechanical life	20,000,000 revolutions
Protection rating	IP40
Rotational torque	$<1 \text{ mN}\cdot\text{m}$
Rated power	2 W
Dielectric withstand voltage	500 V / 1 minute
Nominal resistance	$5 \text{ k}\Omega \pm 15\%$
Other resistance values referenced	1 k Ω , 2 k Ω , 5 k Ω , 10 k Ω
Operating & storage temperature	-55°C to $+125^{\circ}\text{C}$
Mass	47.8 g

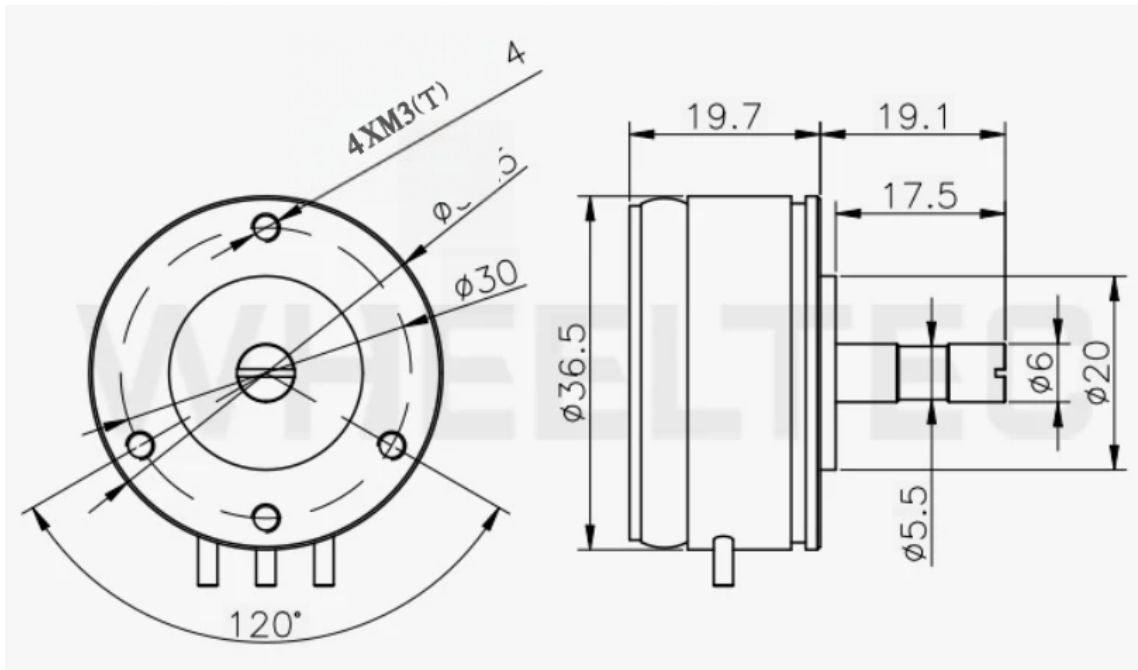
3. Electrical Connection



Parameter	Specification
GND	Ground / reference terminal
VCC	Excitation / supply terminal
Signal	Analog position signal / potentiometer wiper output

The three-terminal arrangement is consistent with a potentiometric angular sensor: VCC and GND establish the excitation across the resistive element, while Signal provides the position-dependent wiper voltage. The supplied material does not state the recommended excitation voltage, maximum supply voltage, allowable wiper current, or required input impedance.

4. Mechanical Dimensions

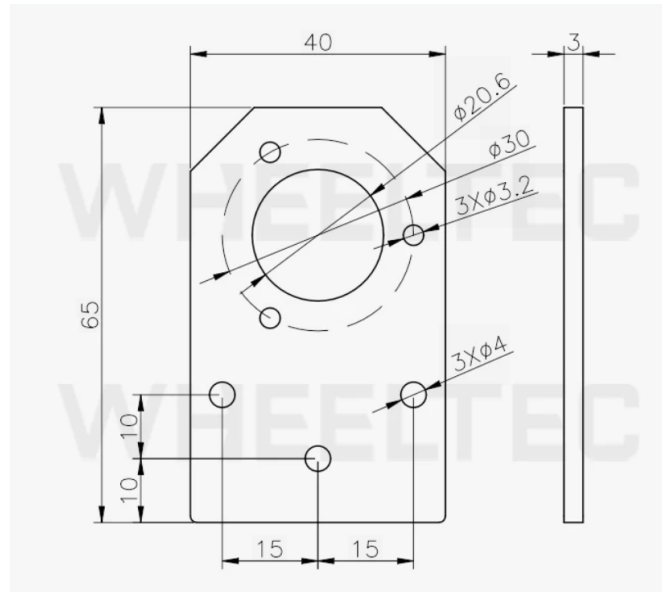


Parameter	Specification
Body diameter	Ø36.5 mm
Body axial length, excluding shaft	19.7 mm
Shaft-side extension shown	19.1 mm
Usable shaft projection shown	17.5 mm
Shaft main diameter	Ø6 mm
Reduced shaft section shown	Ø5.5 mm
Front locating feature	Ø30 mm
Mounting holes	4 × M3 threaded holes
Angular reference	120° shown on front-view drawing

5. Mounting Hardware

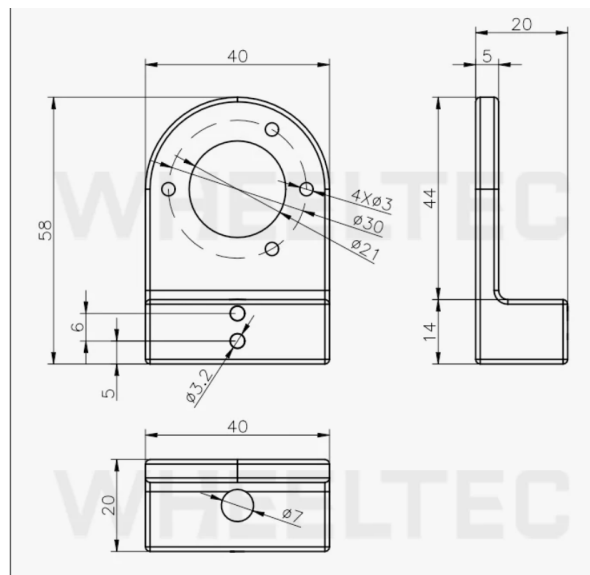
The supplied material shows two holder configurations for adapting the sensor to different installation geometries.

Flat Mounting Plate



Parameter	Specification
Overall size	40 mm wide × 65 mm high
Plate thickness	3 mm
Center opening	Ø20.6 mm
Circular reference	Ø30 mm
Sensor mounting holes	3 × Ø3.2 mm
Lower mounting holes	3 × Ø4 mm
Lower-hole horizontal spacing	15 mm + 15 mm
Vertical references shown	10 mm / 10 mm

L-Shaped Mounting Bracket



6. Installation Configurations

Sensor holder

Two options: 1. Flat 2 L shape



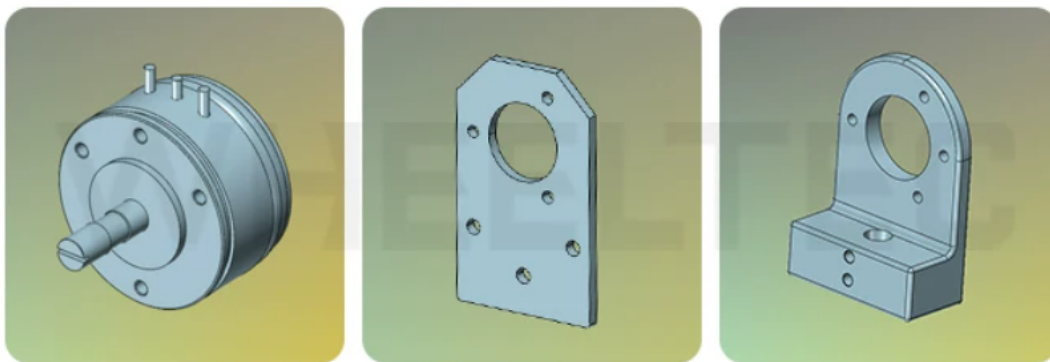
The product information explicitly shows two sensor-holder options: a flat holder and an L-shaped holder. These options allow the sensor to be mounted in different orientations while maintaining shaft access and alignment.

7. Functional Characteristics



The product material highlights 0.1% linearity. Within the effective 345° electrical rotation, the sensor provides continuous analog position feedback. The mechanical rotation is 360°, so the electrically active range is smaller than the full mechanical revolution.

8. Construction



The supplied illustrations show the cylindrical sensor assembly and both mounting-holder styles. The product construction includes a rotary shaft, cylindrical housing, electrical terminals, and mechanical mounting features.

9. Typical Applications

- Industrial rotary-position feedback
- Automation and motion-control equipment
- Actuator and linkage position sensing
- Valve or mechanism position monitoring
- Robotics and electromechanical systems
- Test fixtures and instrumentation
- Analog absolute-angle measurement

10. Integration Recommendations

- Maintain accurate shaft alignment and avoid unintended radial or axial loading.
- Calibrate the system zero and full-scale positions after mechanical installation.
- Use an appropriately high-impedance analog input unless the manufacturer specifies otherwise.
- Account for the 345° electrical range when mapping analog signal to angular position.
- Select the mounting holder according to the available panel geometry and shaft orientation.
- Confirm the resistance option and electrical limits for the exact ordered configuration before production.

11. Source-Limited Parameters

The following values are not explicitly stated in the supplied product images and are therefore intentionally not invented in this datasheet: recommended or maximum VCC, output-voltage span, maximum wiper current, insulation resistance, resistance temperature coefficient, maximum rotational speed, radial/axial shaft load, shock/vibration ratings, connector mating part number, and formal regulatory certifications.

12. Ordering Notes

Model WDD35D4 is identified in the supplied material. The presented nominal resistance is 5 k Ω $\pm$ 15%, while 1 k Ω , 2 k Ω , 5 k Ω , and 10 k Ω resistance values are also referenced. Confirm resistance, cable/terminal configuration, and mounting hardware at the time of ordering.