Rotary Position Sensors

Typical Applications

- Boom and Bucket Angle
- Steering Axle Wheel Angle (for four wheel steer and GPS guidance control)
- Multi-Axle Wheel Position Control
- Plough Hitch Position
- Attachment / Cutting Head Position Control
- Articulated Joint Position Feedback for Articulated Cabs
- Suspension Height Feedback for Semi-Automatic Suspension
- Transmission Gear Selection Feedback
- Engine Throttle Position

The sensor range offers installation options for all types of applications.

Selectable options, include:

- Single- or Dual-Redundant Outputs
- 5V, Regulated and 8-30V, Unregulated Supply
- Multiple Output Options - Voltage, Current PWM and CAN
- Clockwise or Anti-Clockwise Increase in Output
- Any Required Measurement Angle Between 20° and 360°
- Sealing to IP68 2m and IP69K
- One-Piece, Shafted Designs and Two-Piece, Separate-Magnet Designs
- Cost-Effective, Molded Housings or Rugged, Steel Housings

www.cw-industrialgroup.com
Curtiss-Wright Industrial Division

Curtiss-Wright Industrial Division is a recognized leader in providing components and sub-systems that enable customer specific solutions for on- and off-highway vehicles. These include material handling, construction, agricultural and other specialty vehicles, plus medium- and heavy-duty trucks, buses, and motor coaches, as well as sophisticated wheelchairs and scooters for medical mobility.

We are a leading provider of electronic throttle controls, transmission shifters, and sensors addressing the long-term trend across the globe towards attaining higher fuel efficiency and lower emissions. We are also addressing new energy solutions for a greener environment by providing advanced motor controllers and power electronics for hybrid and electric vehicles. In an effort to improve vehicle safety and operator efficiency, we also supply various human interface and operator controls that act seamlessly in today’s modern cab environment.

Why Choose Curtiss-Wright?

Extensive Experience

Curtiss-Wright Industrial Division is a recognized leader in providing components and sub-systems for extreme environments that enable customer specific solutions for on- and off-highway vehicles. These include material handling, marine, construction, agricultural and other specialty vehicles, plus medium- and heavy-duty trucks, buses, and motor coaches, sophisticated wheelchairs and scooters for medical mobility, as well as sensing and control throughout motorsport including Formula One;

- Construction Vehicles
- Agricultural Vehicles and Machines
- Refuse Trucks
- Off-Road Specialist Vehicles
- Military Vehicles
- Motorsport, including Formula One
- Heavy Industrial Machinery

Innovative Products

We are proud of our legacy spanning over 85 years, providing customer specific solutions to market leading OEMs.

Using our applications engineering expertise with customer development teams, we enable a free flow of ideas that provide the most reliable and cost-effective product solution to each unique application.

Reliable Partner

We have long-term relationships with many of the industry-leading OEMs. Whether customizing an existing product to better suit an application, or creating completely new concepts to address an OEM specification, our global team of engineers are ready for the challenge.

Our engineers will work directly with your team to determine what is needed for a successful outcome.

Global Support

Curtiss-Wright Industrial Division has a global footprint, with design and manufacturing in the USA, the United Kingdom, China and India. This is backed by our own sales and technical support teams in over 45 other countries, ensuring exceptional levels of efficiency, quality and on-time delivery.
Rotary Position Sensors

Curtiss-Wright’s legacy in position sensors dates back to 1950, and the introduction of the potentiometer as a position feedback device for aerospace and industrial measurement applications. As measurement technology has moved forward, Curtiss-Wright have been leading the way, and for more than a decade we have been supplying contactless Hall-effect based sensors to the on- and off-highway and industrial markets. Our range of sensors provide maximum performance in extreme environments.

Using the latest advances in Hall-effect technology, Curtiss-Wright rotary sensors offer repeatable, reliable feedback and control signals in hostile environments across a wide range of temperature, humidity, vibration, shock and immersion requirements.

Typical Applications

Our high-quality sensor range is ideally suited to operate in extremely hostile applications required by the on- and off-highway markets.

Typical applications include:

- Boom and Bucket Angle
- Steering Axle Wheel Angle (for four wheel steer and GPS guidance control)
- Multi-Axle Wheel Position Control
- Plough Hitch Position
- Attachment / Cutting Head Position Control
- Articulated Joint Position Feedback for Articulated Cabs
- Suspension Height Feedback for Semi-Automatic Suspension
- Transmission Gear Selection Feedback
- Engine Throttle Position

The sensor range offers installation options for all types of applications.

Customer Options

Selectable options, include:

- Single- or Dual-Redundant Outputs
- 5V, Regulated and 8-30V, Unregulated Supply
- Multiple Output Options - Voltage, Current PWM and CAN
- Clockwise or Anti-Clockwise Increase in Output
- Any Required Measurement Angle Between 20° and 360°
- Sealing to IP68 2m and IP69K
- One-Piece, Shafted Designs and Two-Piece, Separate-Magnet Designs
- Cost-Effective, Molded Housings or Rugged, Steel Housings
Cost-Efficient Installation where Alignment of Measurement Axis is Controlled

Plastic Housings with Small Shaft Bearings

For installations where the machinery has precise movements with no axial- or radial axis-alignment issues, or side loads; a single-piece, shafted sensor offers the most cost-effective solution. One of the following: SRH220 SRH280, TPS280 or SRH300 series.

Applications Include; Throttle Bodies and Gearbox Shafts.

Two-Piece, Separate-Magnet Sensors

For applications where the alignment of the sensor and the moving part of the machine cannot be controlled, meaning there may be axial, radial and/or angular misalignment; then two-piece designs are ideal as they will not be damaged in any of the three off-axis situations – refer to specification sheets for tolerances and limits of all three off-axis situations. One of the following: NRH271/272, NRH27C or NRH300 series.

Applications Include; Heavy Machinery, Large Plain Bearing Joints and Steering Systems.

Robust, Metal Housings with Large Shaft Bearings

Where the machinery has reasonably-controlled movements with small radial axis-alignment issues and low levels of side loads, a single-piece, shafted, metal-housing unit is recommended. One of the following: SRH500 or SRH880 series.

Applications Include; Heavy-Mobile-Machinery Steering, Boom and Bucket Angle Measurement.

Separate Magnet Rotary Sensors

Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>NRH271/272</th>
<th>NRH27C</th>
<th>NRH300DP/305DR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions</td>
<td>36.07mm (Mounting Centers) 9.5mm (Height)</td>
<td>36.07mm (Mounting Centers) 9.5mm (Height)</td>
<td>38.0mm (Mounting Centers) 8mm (Height)</td>
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<tr>
<td>Output Types</td>
<td>Voltage, Digital PWM</td>
<td>CANbus J1939</td>
<td>Voltage, Digital PWM</td>
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<tr>
<td>Supply Voltage</td>
<td>5Vdc (Regulated), upgradeable to 9-30Vdc</td>
<td>5Vdc (Regulated) and 9-30Vdc</td>
<td>NRH300DP - 5Vdc and 9-30Vdc NRH305DR - 5Vdc (Regulated)</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-40°C to +120°C</td>
<td>-40°C to +85°C</td>
<td>-40°C to +120°C</td>
</tr>
</tbody>
</table>
Spring-Return, Rotor-Operated Rotary Sensors

Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>WM-830</th>
<th>WM-900</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimensions</td>
<td>43.69mm (Mounting Centers)</td>
<td>43.69mm (Mounting Centers)</td>
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<tr>
<td></td>
<td>22.05mm (Height)</td>
<td>27.45mm (Height)</td>
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<tr>
<td>Output Types</td>
<td>Voltage, Digital PWM</td>
<td>Voltage, Digital PWM, Current</td>
</tr>
<tr>
<td>Supply Voltage</td>
<td>5Vdc (Regulated)</td>
<td>5Vdc (Regulated) or 10-32Vdc</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-40°C to +85°C</td>
<td>-40°C to +85°C</td>
</tr>
<tr>
<td>Sealing</td>
<td>IP68/IP69K</td>
<td>IP66/IP68/IP69K</td>
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</tbody>
</table>

Through-Hole Rotary Sensors

<table>
<thead>
<tr>
<th>Model</th>
<th>TRH402</th>
</tr>
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<tbody>
<tr>
<td>Dimensions</td>
<td>Ø22.4mm (Through-Hole)</td>
</tr>
<tr>
<td></td>
<td>63.5mm (Mounting Centers)</td>
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<tr>
<td></td>
<td>100.8mm (Length)</td>
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<tr>
<td>Output Types</td>
<td>Voltage</td>
</tr>
<tr>
<td>Supply Voltage</td>
<td>5Vdc (Regulated)</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-40°C to +125°C</td>
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<tr>
<td>Sealing</td>
<td>IP67</td>
</tr>
</tbody>
</table>

Shaft-Operated Rotary Sensors

Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>WM-H10</th>
<th>SRH220DR</th>
<th>SRH301/302</th>
<th>SRH501P/502P</th>
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</thead>
<tbody>
<tr>
<td>Dimensions</td>
<td>32mm (Mounting Centers)</td>
<td>38.0mm (Mounting Centers)</td>
<td>38.0mm (Mounting Centers)</td>
<td>76.0mm (Pitch Circle Diameter)</td>
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<tr>
<td></td>
<td>28.2mm (Height)</td>
<td>25.0mm (Height)</td>
<td>17.3 mm (Height)</td>
<td>37.5 mm Height</td>
</tr>
<tr>
<td>Output Types</td>
<td>Voltage</td>
<td>Voltage, Digital PWM</td>
<td>Voltage, Digital PWM</td>
<td>Voltage, Digital PWM, Current</td>
</tr>
<tr>
<td>Supply Voltage</td>
<td>5Vdc (Regulated)</td>
<td>5Vdc (Regulated) and 9-30Vdc</td>
<td>5Vdc (Regulated) and 9-30Vdc</td>
<td>5Vdc (Regulated) and 9-30Vdc</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-40°C to +85°C</td>
<td>-40°C to +140°C</td>
<td>-40°C to +120°C</td>
<td>-40°C to +140°C</td>
</tr>
<tr>
<td>Sealing</td>
<td>IP68/IP69K</td>
<td>IP67 (Deutsch Connector)</td>
<td>IP68 (AMP Connector)</td>
<td>IP68 /IP69K</td>
</tr>
</tbody>
</table>
Typical applications include:
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• Clockwise or Anti-Clockwise Increase in Output
• Any Required Measurement Angle Between 20° and 360°
• Sealing to IP68 2m and IP69K
• One-Piece, Shafted Designs and Two-Piece, Separate-Magnet Designs
• Cost-Effective, Molded Housings or Rugged, Steel Housings

Important Information: Whilst Curtiss-Wright has designed this sensor to meet a range of applications it is the responsibility of the customer to ensure they meet their specific requirement.

Curtiss-Wright makes no warranty or representation in respect of product fitness or suitability for any particular design application, environment, or otherwise, except as may subsequently be agreed in contract for the sale and purchase of products. Customers should therefore satisfy themselves of the actual performance requirements and subsequently the product’s suitability for any particular design application and the environment in which the product is to be used. Continual research and development may require change to products and specification without prior notification.

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