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# Rotary Position Sensors

Non-Contact, Throttle Position, and Sealed  
Rotary Control Sensors

# 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 longterm 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
- CabsSuspension 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.

### Two-Piece, Separate-Magnet Sensors

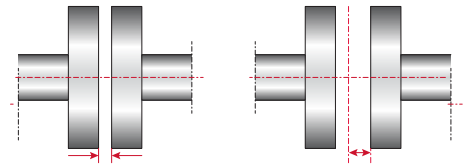
For applications where the alignment of the sensor and the moving part of the machine cannot be controlled, meaning there may be axial, radial and/or angular misalignment; then two-piece designs are ideal as they will not be damaged in any of the three off-axis situations – refer to specification sheets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

### 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.

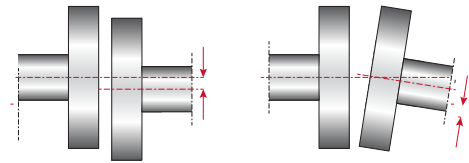
Applications Include; Heavy-Mobile-Machinery Steering, Boom and Bucket Angle Measurement.

### Sensor alignment



Aligned-Shaft Application

Slightly Misaligned-Shaft Application / Axial Misalignment



Slightly Misaligned-Shaft Application / Radial Misalignment

Angular Misalignment

### Separate Magnet Rotary Sensors



#### Specifications

Model	NRH271/272	NRH27C	NRH300DP/305DR
Dimensions	36.07mm (Mounting Centers) 9.5mm (Height)	36.07mm (Mounting Centers) 9.5mm (Height)	38.0mm (Mounting Centers) 8mm (Height)
Output Types	Voltage, Digital PWM	CANbus J1939	Voltage, Digital PWM
Supply Voltage	5Vdc (Regulated), upgradeable to 9-30Vdc	5Vdc (Regulated) and 9-30Vdc	NRH300DP - 5Vdc and 9-30Vdc NRH305DR - 5Vdc (Regulated)
Operating Temperature	-40°C to +120°C	-40°C to +85°C	-40°C to +120°C
Sealing	IP67/IP68/IP69K	IP67/IP68/IP69K	IP68/IP69K

Spring-Return, Rotor-Operated Rotary Sensors



Specifications

Model	WM-830	WM-900
Dimensions	43.69mm (Mounting Centers) 22.05mm (Height)	43.69mm (Mounting Centers) 27.45mm (Height)
Output Types	Voltage, Digital PWM	Voltage, Digital PWM, Current
Supply Voltage	5Vdc (Regulated)	5Vdc (Regulated) or 10-32Vdc
Operating Temperature	-40°C to +85°C	-40°C to +85°C
Sealing	IP68S/IP69K	IP66/IP68S/IP69K

Through-Hole Rotary Sensors



Model	TRH402
Dimensions	Ø22.4mm (Through-Hole) 63.5mm (Mounting Centers) 100.8mm (Length)
Output Types	Voltage
Supply Voltage	5Vdc (Regulated)
Operating Temperature	-40°C to +125°C
Sealing	IP67

Shaft-Operated Rotary Sensors



Specifications

Model	WM-H10	SRH220DR	SRH301/302	SRH501P/502P
Dimensions	32mm (Mounting Centers) 28.2mm (Height)	38.0mm (Mounting Centers) 25.0mm (Height)	38.0mm (Mounting Centers) 17.3 mm (Height)	76.0mm (Pitch Circle Diameter) 37.5 mm Height
Output Types	Voltage	Voltage, Digital PWM	Voltage, Digital PWM	Voltage, Digital PWM, Current
Supply Voltage	5Vdc (Regulated)	5Vdc (Regulated) and 9-30Vdc	5Vdc (Regulated) and 9-30Vdc	5Vdc (Regulated) and 9-30Vdc
Operating Temperature	-40°C to +85°C	-40°C to +140°C	-40°C to +120°C	-40°C to +140°C
Sealing	IP68/IP69K	IP67 (Deutsch Connector) IP68 (AMP Connector)	IP68 /IP69K	IP69K



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