Inductive angle sensors – Specifications

**Technical data**

**Housing**
- **Dimensions**: 53.5 x 45.9 x 4.9 mm
- **Material**: PE/PA (UL94V-0)
- **Max. temperature**: 80 °C (10 min)
- **Degree of protection**: IP60

**Resolution**
- ≤ 0.05°

**Linearity deviation**
- ≤ 0.2 % f.s.

**Lateral offset**
- ≤ 3 mm

**Residual ripple**
- ≤ 0.6 % f.s.

**Rated insulation voltage**
- ≤ 0.5 kV

**Short-circuit protection**
- yes

**Wire-break/Rev. pol. protection**
- yes

**Load resistance voltage**
- ≥ 4.7 kΩ

**Load resistance current output**
- < 100 mA

**Sampling rate**
- > 700 Hz

**Power consumption**
- ≤ 50 mW

**Scope of delivery**
- Angle sensor incl. positioning element
- Power-on indication: LED, green
- Measuring range indication: Multifunction LED, green

**Measuring range**
- 0...90 °C
- 0...180 °C
- 0...360 °C

**Ambient temperature**
- -25...70 °C

**Operating voltage**
- 15...30 VDC

**Voltage output**
- 0...10 V

**Current output**
- 4...20 mA

**Resolution**
- 12 bit

**Temperature drift**
- ≤ ± 0.01 %/K

**Electrical connection**
- SSI output

**Accessories**
- **Pin wiring**
  - Rsip71-QR14-LU4X2/S97
  - Rsip71-QR14-ESG25X2

**Pin wiring**
- Rsip71-QR14-LU4X2/S97
- Rsip71-QR14-ESG25X2

**Technical data**

**Housing**
- **Dimensions**: 53.5 x 45.9 x 4.9 mm
- **Material**: PE/PA (UL94V-0)
- **Max. temperature**: 80 °C (10 min)
- **Degree of protection**: IP60

**Resolution**
- ≤ 0.05°

**Linearity deviation**
- ≤ 0.2 % f.s.

**Lateral offset**
- ≤ 3 mm

**Residual ripple**
- ≤ 0.6 % f.s.

**Rated insulation voltage**
- ≤ 0.5 kV

**Short-circuit protection**
- yes

**Wire-break/Rev. pol. protection**
- yes

**Load resistance voltage**
- ≥ 4.7 kΩ

**Load resistance current output**
- < 100 mA

**Sampling rate**
- > 700 Hz

**Power consumption**
- ≤ 50 mW

**Scope of delivery**
- Angle sensor incl. positioning element
- Power-on indication: LED, green
- Measuring range indication: Multifunction LED, green

**Measuring range**
- 0...90 °C
- 0...180 °C
- 0...360 °C

**Ambient temperature**
- -25...70 °C

**Operating voltage**
- 15...30 VDC

**Voltage output**
- 0...10 V

**Current output**
- 4...20 mA

**Resolution**
- 12 bit

**Temperature drift**
- ≤ ± 0.01 %/K

**Electrical connection**
- SSI output

**Accessories**
- **Pin wiring**
  - Rsip71-QR14-LU4X2/S97
  - Rsip71-QR14-ESG25X2

**Pin wiring**
- Rsip71-QR14-LU4X2/S97
- Rsip71-QR14-ESG25X2

**Technical data**

**Housing**
- **Dimensions**: 53.5 x 45.9 x 4.9 mm
- **Material**: PE/PA (UL94V-0)
- **Max. temperature**: 80 °C (10 min)
- **Degree of protection**: IP60

**Resolution**
- ≤ 0.05°

**Linearity deviation**
- ≤ 0.2 % f.s.

**Lateral offset**
- ≤ 3 mm

**Residual ripple**
- ≤ 0.6 % f.s.

**Rated insulation voltage**
- ≤ 0.5 kV

**Short-circuit protection**
- yes

**Wire-break/Rev. pol. protection**
- yes

**Load resistance voltage**
- ≥ 4.7 kΩ

**Load resistance current output**
- < 100 mA

**Sampling rate**
- > 700 Hz

**Power consumption**
- ≤ 50 mW

**Scope of delivery**
- Angle sensor incl. positioning element
- Power-on indication: LED, green
- Measuring range indication: Multifunction LED, green

**Measuring range**
- 0...90 °C
- 0...180 °C
- 0...360 °C

**Ambient temperature**
- -25...70 °C

**Operating voltage**
- 15...30 VDC

**Voltage output**
- 0...10 V

**Current output**
- 4...20 mA

**Resolution**
- 12 bit

**Temperature drift**
- ≤ ± 0.01 %/K

**Electrical connection**
- SSI output

**Accessories**
- **Pin wiring**
  - Rsip71-QR14-LU4X2/S97
  - Rsip71-QR14-ESG25X2

**Pin wiring**
- Rsip71-QR14-LU4X2/S97
- Rsip71-QR14-ESG25X2

**Technical data**

**Housing**
- **Dimensions**: 53.5 x 45.9 x 4.9 mm
- **Material**: PE/PA (UL94V-0)
- **Max. temperature**: 80 °C (10 min)
- **Degree of protection**: IP60

**Resolution**
- ≤ 0.05°

**Linearity deviation**
- ≤ 0.2 % f.s.

**Lateral offset**
- ≤ 3 mm

**Residual ripple**
- ≤ 0.6 % f.s.

**Rated insulation voltage**
- ≤ 0.5 kV

**Short-circuit protection**
- yes

**Wire-break/Rev. pol. protection**
- yes

**Load resistance voltage**
- ≥ 4.7 kΩ

**Load resistance current output**
- < 100 mA

**Sampling rate**
- > 700 Hz

**Power consumption**
- ≤ 50 mW

**Scope of delivery**
- Angle sensor incl. positioning element
- Power-on indication: LED, green
- Measuring range indication: Multifunction LED, green

**Measuring range**
- 0...90 °C
- 0...180 °C
- 0...360 °C

**Ambient temperature**
- -25...70 °C

**Operating voltage**
- 15...30 VDC

**Voltage output**
- 0...10 V

**Current output**
- 4...20 mA

**Resolution**
- 12 bit

**Temperature drift**
- ≤ ± 0.01 %/K

**Electrical connection**
- SSI output

**Accessories**
- **Pin wiring**
  - Rsip71-QR14-LU4X2/S97
  - Rsip71-QR14-ESG25X2

**Pin wiring**
- Rsip71-QR14-LU4X2/S97
- Rsip71-QR14-ESG25X2
The new inductive angle sensor from TURCK operates according to a novel, revolutionary measuring principle. The positive features of standard measuring systems have been combined and systematically developed further. Rather than being detected by a magnet, the angular position is determined through inductive RLC coupling. The sensor is thus completely immune to magnetic fields, such as generated by large motors for example.

The RI angle sensor is suited for many applications thanks to the excellent interference immunity, the IP67 rated plastic housing and the long service life. Other typical properties are a measuring range of 360° with a repeatability of 0.09° as well as standard outputs and an SSI interface.

Irregularly rotating shafts cause vibration and offset of the positioning element. The two-part build consisting of sensor and positioning element, compensates lateral offsets of ≤ 3 mm. As a result, the sensor works reliably and can be mounted almost anywhere. The absence of shaft and bearing (contactless principle) enables easy adaptation to bearing tolerances on the customer side.

Features
- Contactless, wear-free operation
- Easy mounting and fitting
- Measuring range up to 360°
- High interference immunity
- Highly reliable measuring principle and safety operation
- High linearity
- High flexibility
- Rugged plastic housing
- Hardly affected by lateral offset and vibration

The measuring principle
Inductive RLC coupling provides considerable advantages compared to magnetic measuring systems.

The printed coils are very precisely manufactured and work as a system of emitter and receiver coils. The emitter coil is excited by a high-frequency AC field, inducing inductive RLC coupling between emitter coil and positioning element (resonator). As a result, the resonator and receiver coils are also inductively coupled.

The receiver coils are arranged in a circle. Depending on the resonator’s rotation angle, different voltages are induced in the coils, serving as a measure for the sensor signal.

Positioning element – flexible mounting
Thanks to the smart design, the positioning element can be mounted in many ways. With blind holes they can be screwed on solid shafts and with special pin adapters they can even be mounted on hollow-shafts.

The measuring system works contactless and wear-free. Frequency converters, large motors, ferritic metals or permanent magnets are no problem at all. The new angle sensor is optimally suited for measurement tasks, such as paper and film machines, where the contactless principle, as well as vibration caused by irregularly rotating shafts. This guarantees high linearity. Thanks to the innovative accessories you can mount the sensor on hollow/solid and keyless shafts. Adapters are available in sizes of 6 and 8 mm and provide undreamed-of flexibility.

The new angle sensors provide highly precise measuring signals within 360° and a repeatability of 0.09°. Bearing tolerances are compensated by the coaxiality of sensor and positioning element. The distance between sensor and positioning element as well as roughness in the guidance have no influence on the output signal.

Frequency converters, large motors, ferritic metals or permanent magnets are no problem at all. The new angle sensor is optimally suited for measurement tasks, such as paper and film machines, where the contactless principle, as well as vibration caused by irregularly rotating shafts. This guarantees high linearity. Thanks to the innovative accessories you can mount the sensor on hollow/solid and keyless shafts. Adapters are available in sizes of 6 and 8 mm and provide undreamed-of flexibility.

The new measuring system works contactless and wear-free. Frequency converters, large motors, ferritic metals or permanent magnets are no problem at all. The new angle sensor is optimally suited for measurement tasks, such as paper and film machines, where the contactless principle, as well as vibration caused by irregularly rotating shafts. This guarantees high linearity. Thanks to the innovative accessories you can mount the sensor on hollow/solid and keyless shafts. Adapters are available in sizes of 6 and 8 mm and provide undreamed-of flexibility.

The RI sensors are also optimally suited for measuring the height position of paper stacks.

Many application possibilities

Solar Tracking
The panels on solar trackers or similar systems are adapted according to the sun’s position. The movement takes place uni-axially in a horizontal plane. The angular measurement required to avoid mutual shadowing of the panels, is achieved with RI angle sensors.

Dancer rolls
The angles of the RI series operate contactless and wear-free. They can be installed in printing machines, where they continuously query the actual position value of the dancer rolls which ensure constant web tension. The paper is thus securely controlled during the printing process, machine down-times are avoided and a good printing quality is guaranteed.

The RI sensors are also optimally suited for measuring the height position of paper stacks.

Flexible process connection

You can choose between different output types, such as 0…10 V, 4…20 mA and 0.5…4.5 V or an SSI interface. Standard M12 x 1 plugs or cable-construction are optional, making the use of special connectors redundant.

The contactless operating RI angle sensors reduce down-times and ensure high machine availability.

Long service life

The new inductive angle sensor from TURCK operates according to a novel, revolutionary measuring principle. The positive features of standard measuring systems have been combined and systematically developed further. Rather than being detected by a magnet, the angular position is determined through inductive RLC coupling. The sensor is thus completely immune to magnetic fields, such as generated by large motors for example.

The RI angle sensor is suited for many applications thanks to the excellent interference immunity, the IP67 rated plastic housing and the long service life. Other typical properties are a measuring range of 360° with a repeatability of 0.09° as well as standard outputs and an SSI interface.

Irregularly rotating shafts cause vibration and offset of the positioning element. The two-part build consisting of sensor and positioning element, compensates lateral offsets of ≤ 3 mm. As a result, the sensor works reliably and can be mounted almost anywhere. The absence of shaft and bearing (contactless principle) enables easy adaptation to bearing tolerances on the customer side.

Features
- Contactless, wear-free operation
- Easy mounting and fitting
- Measuring range up to 360°
- High interference immunity
- Highly reliable measuring principle and safety operation
- High linearity
- High flexibility
- Rugged plastic housing
- Hardly affected by lateral offset and vibration

The measuring principle
Inductive RLC coupling provides considerable advantages compared to magnetic measuring systems.

The printed coils are very precisely manufactured and work as a system of emitter and receiver coils. The emitter coil is excited by a high-frequency AC field, inducing inductive RLC coupling between emitter coil and positioning element (resonator). As a result, the resonator and receiver coils are also inductively coupled.

The receiver coils are arranged in a circle. Depending on the resonator’s rotation angle, different voltages are induced in the coils, serving as a measure for the sensor signal.

Positioning element – flexible mounting
Thanks to the smart design, the positioning element can be mounted in many ways. With blind holes they can be screwed on solid shafts and with special pin adapters they can even be mounted on hollow-shafts.

The measuring system works contactless and wear-free. Frequency converters, large motors, ferritic metals or permanent magnets are no problem at all. The new angle sensor is optimally suited for measurement tasks, such as paper and film machines, where the contactless principle, as well as vibration caused by irregularly rotating shafts. This guarantees high linearity.

The distance between sensor and positioning element as well as roughness in the guidance have no influence on the output signal.

Frequency converters, large motors, ferritic metals or permanent magnets are no problem at all. The new angle sensor is optimally suited for measurement tasks, such as paper and film machines, where the contactless principle, as well as vibration caused by irregularly rotating shafts. This guarantees high linearity.

Thanks to the innovative accessories you can mount the sensor on hollow/solid and keyless shafts. Adapters are available in sizes of 6 and 8 mm and provide undreamed-of flexibility.

The new angle sensors provide highly precise measuring signals within 360° and a repeatability of 0.09°. Bearing tolerances are compensated by the coaxiality of sensor and positioning element. The distance between sensor and positioning element as well as roughness in the guidance have no influence on the output signal.

You can choose between different output types, such as 0…10 V, 4…20 mA and 0.5…4.5 V or an SSI interface. Standard M12 x 1 plugs or cable-construction are optional, making the use of special connectors redundant.

The contactless operating RI angle sensors reduce down-times and ensure high machine availability.

Long service life

The new inductive angle sensor from TURCK operates according to a novel, revolutionary measuring principle. The positive features of standard measuring systems have been combined and systematically developed further. Rather than being detected by a magnet, the angular position is determined through inductive RLC coupling. The sensor is thus completely immune to magnetic fields, such as generated by large motors for example.

The RI angle sensor is suited for many applications thanks to the excellent interference immunity, the IP67 rated plastic housing and the long service life. Other typical properties are a measuring range of 360° with a repeatability of 0.09° as well as standard outputs and an SSI interface.

Irregularly rotating shafts cause vibration and offset of the positioning element. The two-part build consisting of sensor and positioning element, compensates lateral offsets of ≤ 3 mm. As a result, the sensor works reliably and can be mounted almost anywhere. The absence of shaft and bearing (contactless principle) enables easy adaptation to bearing tolerances on the customer side.

Features
- Contactless, wear-free operation
- Easy mounting and fitting
- Measuring range up to 360°
- High interference immunity
- Highly reliable measuring principle and safety operation
- High linearity
- High flexibility
- Rugged plastic housing
- Hardly affected by lateral offset and vibration

The measuring principle
Inductive RLC coupling provides considerable advantages compared to magnetic measuring systems.

The printed coils are very precisely manufactured and work as a system of emitter and receiver coils. The emitter coil is excited by a high-frequency AC field, inducing inductive RLC coupling between emitter coil and positioning element (resonator). As a result, the resonator and receiver coils are also inductively coupled.

The receiver coils are arranged in a circle. Depending on the resonator’s rotation angle, different voltages are induced in the coils, serving as a measure for the sensor signal.

Positioning element – flexible mounting
Thanks to the smart design, the positioning element can be mounted in many ways. With blind holes they can be screwed on solid shafts and with special pin adapters they can even be mounted on hollow-shafts.

The measuring system works contactless and wear-free. Frequency converters, large motors, ferritic metals or permanent magnets are no problem at all. The new angle sensor is optimally suited for measurement tasks, such as paper and film machines, where the contactless principle, as well as vibration caused by irregularly rotating shafts. This guarantees high linearity.

The distance between sensor and positioning element as well as roughness in the guidance have no influence on the output signal.

Frequency converters, large motors, ferritic metals or permanent magnets are no problem at all. The new angle sensor is optimally suited for measurement tasks, such as paper and film machines, where the contactless principle, as well as vibration caused by irregularly rotating shafts. This guarantees high linearity.

Thanks to the innovative accessories you can mount the sensor on hollow/solid and keyless shafts. Adapters are available in sizes of 6 and 8 mm and provide undreamed-of flexibility.

The new angle sensors provide highly precise measuring signals within 360° and a repeatability of 0.09°. Bearing tolerances are compensated by the coaxiality of sensor and positioning element. The distance between sensor and positioning element as well as roughness in the guidance have no influence on the output signal.
The new inductive angle sensor from TURCK operates according to a novel, revolutionary measuring principle. The positive features of standard measuring systems have been combined and systematically developed further. Rather than being detected by a magnet, the angular position is determined through inductive RLC coupling. The sensor is thus completely immune to magnetic fields, such as generated by large motors, for example.

The Ri angle sensor is suited for many applications thanks to the excellent interference immunity, the IP67 rated plastic housing and the long service life. Other typical properties are a measuring range of 360° with a repeatability of 0.09° as well as standard outputs and an SSI interface.

Features
- Contactless, wear-free operation
- High interference immunity
- Hardly affected by lateral offset and vibration
- Easy mounting and fitting
- High flexibility
- Measuring range up to 360°
- Rugged plastic housing
- High linearity
- Highly reliable measuring principle and safe operation
- Highly flexible positioning element
- Regulated plastic housing
- Hourly affected by lateral offset and vibration
- Irregularly rotating shafts cause vibration and offset of the positioning element. The two-part build consisting of sensor and positioning element, compensates lateral offsets of ≤ 3 mm. As a result, the sensor works reliably and can be mounted almost anywhere. The absence of shaft and bearing (contactless principle) enables easy adaptation to bearing tolerances on the customer side.

The measuring principle
Inductive RLC coupling provides considerable advantages compared to magnetic measuring systems.

The printed coils are very precisely manufactured and work as a system of emitter and receiver coils. The emitter coil is excited by a high frequency AC field, inducing inductive RLC coupling between emitter coil and positioning element (resonator). As a result, the resonator and receiver coils are also inductively coupled.

The resonator coils are arranged in a circle. Depending on the resonator’s rotation angle, different voltages are induced in the coils, serving as a measure for the sensor signal.

Positioning element – flexible mounting
Thanks to the smart design, the positioning element can be mounted in many ways. With blind holes they can be screwed on solid shafts and with special pin adapters they can even be mounted on hollow shafts.

Features
- Frequency converter and control interfaces
- Long service life
- Highly interference immune
- Rugged housing and easy mounting
- High linearity and vibration resistance
- Flexible process connection
- Hollow/solid shaft adaptable
- Flexible equipment connection
- Many application possibilities

Solar Tracking
The panels on solar trackers or similar systems are adjusted according to the sun’s position. The movement takes place axisymmetrically in a horizontal plane. The angular measurement required to avoid mutual shadowing of the panels, is achieved with Ri angle sensors.

The angular positions of the Ri series operate contactless and wear-free. They can be installed in printing machines, where they continuously query the angular position value of the dancer rolls which ensure constant web tension. The paper quality is guaranteed.

The Ri sensors are optimally suited for measuring the height position of paper stacks.

Ri angle sensors provide highly precise measuring signals within 360° and a repeatability of 0.09°. Bearing tolerances in the contactless principle, as well as vibration caused by irregularly rotating shafts. This guarantees high linearity.

The contactless operating Ri angle sensors reduce down-times and ensure high machine availability.

Thanks to the innovative accessories, you can extend the sensor on hollow shafts. Adapters are available in sizes of 6 and 8 mm and provide undreamed-of flexibility.

You can choose between different analog outputs, 0…10 V, 4…20 mA and 0.5…4.5 V and an SSI interface. Standard M12 x 1 plug or cable connection are available, making the use of special connectors redundant.
The new inductive angle sensor from Turck operates according to a novel, revolutionary measuring principle. The positive features of standard measuring systems have been combined and systematically developed further. Rather than being detected by a magnet, the angular position is determined through inductive RLC coupling. The sensor is thus completely immune to magnetic fields, such as generated by large motors for example.

The Ri angle sensor is suited for many applications thanks to the excellent interference immunity, the IP67 rated plastic housing and the long service life.

Other typical properties are a measuring range of 360° with a repeatability of 0.09° as well as standard outputs and an SSI interface.

Features
- Contactless, seal-free operation
- Easy mounting and fitting
- Measuring range up to 360°
- High interference immunity
- High flexibility
- Rugged plastic housing
- Highly reliable mounting principle and safe operation
- Frequent application possibilities
- Long service life
- Highly interference immune
- Frequency converters, large motors, frequency inverters, ferritic metals or permanent magnets are no problem at all. The new angle sensor works contactless and wear-free. Important features such as accuracy, linearity and tightness are conserved for life and guarantee high linearity of the sensor at all times.

The measuring principle
Inductive RLC coupling provides considerable advantages compared to magnetic measuring systems.

The printed coils are very precisely manufactured and work as a system of emitter and receiver coils. The emitter coil is excited by a high-frequency AC field, inducing inductive RLC coupling between emitter coil and positioning element (resonator). As a result, the resonator and receiver coils are also inductively coupled.

The receiver coils are arranged in a circle. Depending on the resonator’s rotation angle, different voltages are induced in the coils, serving as a measure for the sensor signal.

Positioning element – flexible mounting
Thanks to the smart design, the positioning element can be mounted in many ways. With blind holes they can be screwed on solid shafts and with special pin adapters they can even be mounted on hollow shafts.

Positioning through dancer rolls
The angle sensors of the Ri series operate contactless and wear-free. They can be installed in printing machines, where they continuously query the angular position value of the dancer rolls which ensures constant web tension. The paper is thus securely controlled during the printing process, machine down-times are avoided and a good printing quality is guaranteed.

The Ri sensors are also optimally suited for measuring the height position of paper stacks.

Long service life
The new measuring system works contactless and wear-free. Thanks to the new position sensor, the sensor is highly reliable and can be mounted virtually anywhere. The absence of shaft and bearing (conventional principle) enables easy adaptation to bearing tolerances on the customer side.

Irregularly rotating shafts cause vibration and effect of the positioning element. The two-part build consisting of sensor and positioning element, compensates lateral offsets of ≤ 3 mm. As a result, the sensor works reliably and can be mounted almost anywhere. The absence of shaft and bearing (conventional principle) enables easy adaptation to bearing tolerances on the customer side.

Positioning through hollow/solid shaft
Screwed on solid shafts and with special pin adapters they can even be mounted on hollow shafts.

Highly reliable mounting principle and safe operation
- The resonator coils are arranged in a circle. Depending on the resonator’s rotation angle, different voltages are induced in the coils, serving as a measure for the sensor signal.

Positioning through hollow/solid shaft
Thanks to the innovative accessories you can transfer the sensor on hollow/solid shafts. Adapters are available in sizes of 6 and 8 mm and provide undreamed-of flexibility.

Flexible process connection
Thanks to the innovative accessories you can transfer the sensor on hollow/solid shafts. Adapters are available in sizes of 6 and 8 mm and provide undreamed-of flexibility.

Many application possibilities
Solar Tracking
The panels on solar trackers or similar systems are adjusted according to the sun’s position. The movement takes place uniaxially in a horizontal plane. The angular measurement required to avoid mutual shadowing of the panels, is achieved with Ri angle sensors.

Dancer rolls
The angle sensors of the Ri series operate contactless and wear-free. They can be installed in printing machines, where they continuously query the angular position value of the dancer rolls which ensures constant web tension. The paper is thus securely controlled during the printing process, machine down-times are avoided and a good printing quality is guaranteed.

The Ri sensors are also optimally suited for measuring the height position of paper stacks.

Flexible process connection
The contacts operating Ri angle sensors reduce down-times and ensure high machine availability.

Many application possibilities
### Inductive angle sensors – Specifications

#### Dimension Drawing
- **Type**: Ri360P1-QR14-LiU5X2
- **Measuring range**: 0…360 °C
- **Ambient temperature**: -25…70 °C
- **Operating voltage**: 15…30 VDC
- **Voltage output**: 0…10 V
- **Current output**: 4…20 mA
- **Resolution**: 12 bit
- **Temperature drift**: ≤ ±0.01 %/K
- **Electrical connection**: no
- **Power consumption**: 700 Hz ≤ 100 mA

#### Technical Data
- **Ambient temperature**: -25…70 °C
- **Operating voltage**: 15…30 VDC
- **Voltage output**: 0…10 V
- **Current output**: 4…20 mA
- **Resolution**: 12 bit
- **Temperature drift**: ≤ ±0.01 %/K
- **Electrical connection**: no

#### Accessories
- **Positioning element**: P1-Ri-QR14 Positioning element, operating at a distance of 0…6 mm to the sensor surface
- **Spacer sleeve**: DS-Ri-QR14 Spacer sleeve for overhead mounting
- **TB4 Analog test box for sensors**: with analog or switching output, incl. batteries
- **HSA-M6-QR14 Hollow/solid shaft adapter**: Ø 6 mm
- **HSA-M8-QR14 Hollow/solid shaft adapter**: Ø 8 mm

---

**Sense it! Connect it! Bus it! Solve it!**
## Inductive angle sensors – Specifications

### Technical data

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing</td>
<td>Housing</td>
<td>Housing</td>
<td>Housing</td>
</tr>
<tr>
<td>Pin wiring</td>
<td>Pin wiring</td>
<td>Pin wiring</td>
<td>Pin wiring</td>
</tr>
<tr>
<td>Dimension Drawing Type</td>
<td>Dimension Drawing Type</td>
<td>Dimension Drawing Type</td>
<td>Dimension Drawing Type</td>
</tr>
<tr>
<td>R069P1-014-LU4X2</td>
<td>R069P1-014-LU4X2</td>
<td>R069P1-014-LU4X2</td>
<td>R069P1-014-LU4X2</td>
</tr>
<tr>
<td>Measuring range</td>
<td>Measuring range</td>
<td>Measuring range</td>
<td>Measuring range</td>
</tr>
<tr>
<td>0…360 °C</td>
<td>0…360 °C</td>
<td>0…360 °C</td>
<td>0…360 °C</td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>Ambient temperature</td>
<td>Ambient temperature</td>
<td>Ambient temperature</td>
</tr>
<tr>
<td>-25…70 °C</td>
<td>-25…70 °C</td>
<td>-25…70 °C</td>
<td>-25…70 °C</td>
</tr>
<tr>
<td>Operating voltage</td>
<td>Operating voltage</td>
<td>Operating voltage</td>
<td>Operating voltage</td>
</tr>
<tr>
<td>8…30 VDC</td>
<td>8…30 VDC</td>
<td>8…30 VDC</td>
<td>8…30 VDC</td>
</tr>
<tr>
<td>Voltage output</td>
<td>Voltage output</td>
<td>Voltage output</td>
<td>Voltage output</td>
</tr>
<tr>
<td>0…10 V</td>
<td>0…10 V</td>
<td>0…10 V</td>
<td>0…10 V</td>
</tr>
<tr>
<td>Current output</td>
<td>Current output</td>
<td>Current output</td>
<td>Current output</td>
</tr>
<tr>
<td>4…20 mA</td>
<td>4…20 mA</td>
<td>4…20 mA</td>
<td>4…20 mA</td>
</tr>
<tr>
<td>Resolution</td>
<td>Resolution</td>
<td>Resolution</td>
<td>Resolution</td>
</tr>
<tr>
<td>≤ 0.09 °</td>
<td>≤ 0.09 °</td>
<td>≤ 0.09 °</td>
<td>≤ 0.09 °</td>
</tr>
<tr>
<td>Linearity deviation</td>
<td>Linearity deviation</td>
<td>Linearity deviation</td>
<td>Linearity deviation</td>
</tr>
<tr>
<td>≤ 0.3 % f.s.</td>
<td>≤ 0.3 % f.s.</td>
<td>≤ 0.3 % f.s.</td>
<td>≤ 0.3 % f.s.</td>
</tr>
<tr>
<td>Lateral offset</td>
<td>Lateral offset</td>
<td>Lateral offset</td>
<td>Lateral offset</td>
</tr>
<tr>
<td>≤ 3 mm</td>
<td>≤ 3 mm</td>
<td>≤ 3 mm</td>
<td>≤ 3 mm</td>
</tr>
<tr>
<td>Residual ripple</td>
<td>Residual ripple</td>
<td>Residual ripple</td>
<td>Residual ripple</td>
</tr>
<tr>
<td>≤ 1.23 %</td>
<td>≤ 1.23 %</td>
<td>≤ 1.23 %</td>
<td>≤ 1.23 %</td>
</tr>
<tr>
<td>Rated insulation voltage</td>
<td>Rated insulation voltage</td>
<td>Rated insulation voltage</td>
<td>Rated insulation voltage</td>
</tr>
<tr>
<td>≤ 0.5 kV</td>
<td>≤ 0.5 kV</td>
<td>≤ 0.5 kV</td>
<td>≤ 0.5 kV</td>
</tr>
<tr>
<td>Short-circuit protection</td>
<td>Short-circuit protection</td>
<td>Short-circuit protection</td>
<td>Short-circuit protection</td>
</tr>
<tr>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>yes/fully</td>
<td>yes/fully</td>
<td>yes/fully</td>
<td>yes/fully</td>
</tr>
<tr>
<td>Load capacitance voltage</td>
<td>Load capacitance voltage</td>
<td>Load capacitance voltage</td>
<td>Load capacitance voltage</td>
</tr>
<tr>
<td>≤ 0.94 kV</td>
<td>≤ 0.94 kV</td>
<td>≤ 0.94 kV</td>
<td>≤ 0.94 kV</td>
</tr>
<tr>
<td>Load resistance current output</td>
<td>Load resistance current output</td>
<td>Load resistance current output</td>
<td>Load resistance current output</td>
</tr>
<tr>
<td>≥ 4.7 kΩ</td>
<td>≥ 4.7 kΩ</td>
<td>≥ 4.7 kΩ</td>
<td>≥ 4.7 kΩ</td>
</tr>
<tr>
<td>Power consumption</td>
<td>Power consumption</td>
<td>Power consumption</td>
<td>Power consumption</td>
</tr>
<tr>
<td>&lt; 100 mA</td>
<td>&lt; 100 mA</td>
<td>&lt; 100 mA</td>
<td>&lt; 100 mA</td>
</tr>
<tr>
<td>Pin wiring</td>
<td>Pin wiring</td>
<td>Pin wiring</td>
<td>Pin wiring</td>
</tr>
<tr>
<td>R069P1-014-LU4X2</td>
<td>R069P1-014-LU4X2</td>
<td>R069P1-014-LU4X2</td>
<td>R069P1-014-LU4X2</td>
</tr>
<tr>
<td>Measuring range</td>
<td>Measuring range</td>
<td>Measuring range</td>
<td>Measuring range</td>
</tr>
<tr>
<td>0…360 °C</td>
<td>0…360 °C</td>
<td>0…360 °C</td>
<td>0…360 °C</td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>Ambient temperature</td>
<td>Ambient temperature</td>
<td>Ambient temperature</td>
</tr>
<tr>
<td>-40…70 °C</td>
<td>-40…70 °C</td>
<td>-40…70 °C</td>
<td>-40…70 °C</td>
</tr>
<tr>
<td>Operating voltage</td>
<td>Operating voltage</td>
<td>Operating voltage</td>
<td>Operating voltage</td>
</tr>
<tr>
<td>8…30 VDC</td>
<td>8…30 VDC</td>
<td>8…30 VDC</td>
<td>8…30 VDC</td>
</tr>
<tr>
<td>Voltage output</td>
<td>Voltage output</td>
<td>Voltage output</td>
<td>Voltage output</td>
</tr>
<tr>
<td>0…10 V</td>
<td>0…10 V</td>
<td>0…10 V</td>
<td>0…10 V</td>
</tr>
<tr>
<td>Current output</td>
<td>Current output</td>
<td>Current output</td>
<td>Current output</td>
</tr>
<tr>
<td>4…20 mA</td>
<td>4…20 mA</td>
<td>4…20 mA</td>
<td>4…20 mA</td>
</tr>
<tr>
<td>Resolution</td>
<td>Resolution</td>
<td>Resolution</td>
<td>Resolution</td>
</tr>
<tr>
<td>≤ 0.09 °</td>
<td>≤ 0.09 °</td>
<td>≤ 0.09 °</td>
<td>≤ 0.09 °</td>
</tr>
<tr>
<td>Linearity deviation</td>
<td>Linearity deviation</td>
<td>Linearity deviation</td>
<td>Linearity deviation</td>
</tr>
<tr>
<td>≤ 0.3 % f.s.</td>
<td>≤ 0.3 % f.s.</td>
<td>≤ 0.3 % f.s.</td>
<td>≤ 0.3 % f.s.</td>
</tr>
<tr>
<td>Lateral offset</td>
<td>Lateral offset</td>
<td>Lateral offset</td>
<td>Lateral offset</td>
</tr>
<tr>
<td>≤ 3 mm</td>
<td>≤ 3 mm</td>
<td>≤ 3 mm</td>
<td>≤ 3 mm</td>
</tr>
<tr>
<td>Residual ripple</td>
<td>Residual ripple</td>
<td>Residual ripple</td>
<td>Residual ripple</td>
</tr>
<tr>
<td>≤ 1.23 %</td>
<td>≤ 1.23 %</td>
<td>≤ 1.23 %</td>
<td>≤ 1.23 %</td>
</tr>
<tr>
<td>Rated insulation voltage</td>
<td>Rated insulation voltage</td>
<td>Rated insulation voltage</td>
<td>Rated insulation voltage</td>
</tr>
<tr>
<td>≤ 0.5 kV</td>
<td>≤ 0.5 kV</td>
<td>≤ 0.5 kV</td>
<td>≤ 0.5 kV</td>
</tr>
<tr>
<td>Short-circuit protection</td>
<td>Short-circuit protection</td>
<td>Short-circuit protection</td>
<td>Short-circuit protection</td>
</tr>
<tr>
<td>yes</td>
<td>yes</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td>yes/fully</td>
<td>yes/fully</td>
<td>yes/fully</td>
<td>yes/fully</td>
</tr>
<tr>
<td>Load capacitance voltage</td>
<td>Load capacitance voltage</td>
<td>Load capacitance voltage</td>
<td>Load capacitance voltage</td>
</tr>
<tr>
<td>≤ 0.94 kV</td>
<td>≤ 0.94 kV</td>
<td>≤ 0.94 kV</td>
<td>≤ 0.94 kV</td>
</tr>
<tr>
<td>Load resistance current output</td>
<td>Load resistance current output</td>
<td>Load resistance current output</td>
<td>Load resistance current output</td>
</tr>
<tr>
<td>≥ 4.7 kΩ</td>
<td>≥ 4.7 kΩ</td>
<td>≥ 4.7 kΩ</td>
<td>≥ 4.7 kΩ</td>
</tr>
<tr>
<td>Power consumption</td>
<td>Power consumption</td>
<td>Power consumption</td>
<td>Power consumption</td>
</tr>
<tr>
<td>&lt; 100 mA</td>
<td>&lt; 100 mA</td>
<td>&lt; 100 mA</td>
<td>&lt; 100 mA</td>
</tr>
</tbody>
</table>

To get all product information, just scan the QR code with a smartphone or webcam.