**Series AR62/AR63**

**Hengstler**

**Magnetic Absolute Encoder**

**Key Features**

- 12 Bit Single-Turn Resolution, up to 16 Bit Multi-Turn
- Oversized Bearings for up to 3x Life of Standard Absolute Encoders
- Wide -40° to 100°C Temperature Range
- Submersible — IP69K Sealing Available
- Rated to 200g Shock, 20g Vibration for Harsh Environments
- Stainless Steel or Aluminum Housing

**Specifications**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absolute Encoders Series AR62/AR63</td>
<td>Magnetic Absolute Encoder</td>
</tr>
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<td>Absolute Resolution</td>
<td>12 Bit Single-Turn Resolution, up to 16 Bit Multi-Turn</td>
</tr>
<tr>
<td>Oversized Bearings</td>
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<td>Submersible</td>
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</tr>
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<td>Shock Resistance</td>
<td>Rated to 200g</td>
</tr>
<tr>
<td>Vibration</td>
<td>20g</td>
</tr>
<tr>
<td>Housing</td>
<td>Stainless Steel or Aluminum</td>
</tr>
</tbody>
</table>

**Electrical Connections**

- **Canopen**
  - Cable Color: Yellow, Green, Pink, Grey, Blue, White, Brown, Screen
  - Pin: 6, 5, 4, 8, 7, 1, 2, 3
  - Signal: Clock, Data, Clock, Data, Signal Direction, UB, 0V, Preset (set to 0)

- **Analog**
  - Cable Color: Pink, White, Brown, Screen
  - PIN: 5, 1, 2, 3
  - Signal: 0...10 V (Voltage), 4...20 mA (Current)

**Standard Operating Characteristics**

- **Code**: Absolute, Magnetic
- **Absolute Accuracy**: ±1°
- **Repeatability**: ±0.2°

**Electrical**

- **Noise Immunity**: Tested to EN61326-1
- **Parametrization**: Preset
- **Termination**: Cable radial, radial; M12 connector, radial; Cable radial for maritime approval

**Interface**

- **CANopen & SSI**
- **Input Power**: 10-30VDC (+10%)
- **Resolution**: Single-turn: 12 Bit, Multi-turn: 12, 16 Bit

**Mechanical**

- **Shaft Diameter**: 3/8", 10 mm
- **Shaft Speed (maximum)**: 5000 rpm
- **Shaft Load (axial/radial)**: 300 N max.
- **Mounting Depth**: 32 mm
- **Maximum Speed**: max. 5,000 rpm
- **Maximum Speed Analog**: max. 1,500 rpm (continuous), Max 5,000 rpm (short term)
- **Starting Torque typ.**: ≤ 4.5 Nm

**Mechanical (Cont.)**

- **Moment of Inertia**: 25 gcm²
- **Housing Material**: Stainless Steel
- **Shaft Material**: Stainless Steel
- **Weight**:
  - AR62 w/ 1.5m cable: approx. 480g
  - AR62 w/ connector M12: approx. 250g
  - AR63 w/ 1.5m cable: approx. 700g
  - AR63 w/ connector M12: approx. 470g

**Environmental**

- **Standard Operating Temperature**:
  - SSI: -40 °C ...+100 °C
  - With Maritime Approval (DNV GL): -40 °C ...+85 °C
- **Storage Temperature**: -15 °C ...+85 °C
- **Shock**: 2000 m/s² (6 ms)
- **Vibration**: 200 m/s² (10 ... 2000 Hz)
- **Humidity**: 75%, without condensation
- **Enclosure Rating**: IP67 or IP69K

**Electrical Connections – Analog**

<table>
<thead>
<tr>
<th>Cable Color</th>
<th>PIN</th>
<th>Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pink</td>
<td>5</td>
<td>0...10 V (Voltage), 4...20 mA (Current)</td>
</tr>
<tr>
<td>White</td>
<td>1</td>
<td>UB</td>
</tr>
<tr>
<td>Brown</td>
<td>2</td>
<td>0V</td>
</tr>
<tr>
<td>Red</td>
<td>3</td>
<td>Preset (set to 0)</td>
</tr>
<tr>
<td>Screen</td>
<td>Screen</td>
<td>Screen</td>
</tr>
</tbody>
</table>

**Electrical Connections – SSI**

<table>
<thead>
<tr>
<th>Color</th>
<th>Signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yellow</td>
<td>CAN in+</td>
</tr>
<tr>
<td>Green</td>
<td>CAN in-</td>
</tr>
<tr>
<td>Pink</td>
<td>CAN out+</td>
</tr>
<tr>
<td>Grey</td>
<td>CAN out-</td>
</tr>
<tr>
<td>Blue</td>
<td>CAN GND in</td>
</tr>
<tr>
<td>Black</td>
<td>CAN GND out</td>
</tr>
<tr>
<td>White</td>
<td>UB</td>
</tr>
<tr>
<td>Brown</td>
<td>0V</td>
</tr>
<tr>
<td>Screen</td>
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</tr>
</tbody>
</table>

**Note**

1. Diagnostic signals only for service purposes. The cable wires have to be isolated.
2. Preset and Direction low active: Signal level high ≤ DC 2 V

**Electrical Connections – Canopen**

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<th>PIN</th>
<th>Signal</th>
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<tbody>
<tr>
<td>Yellow</td>
<td>6</td>
<td>Clock</td>
</tr>
<tr>
<td>Pink</td>
<td>5</td>
<td>Data</td>
</tr>
<tr>
<td>Green</td>
<td>4</td>
<td>Clock</td>
</tr>
<tr>
<td>Grey</td>
<td>8</td>
<td>Data</td>
</tr>
<tr>
<td>Blue</td>
<td>7</td>
<td>Signal Direction³</td>
</tr>
<tr>
<td>White</td>
<td>1</td>
<td>UB</td>
</tr>
<tr>
<td>Brown</td>
<td>2</td>
<td>0V</td>
</tr>
<tr>
<td>Red</td>
<td>3</td>
<td>Preset (set to 0)¹</td>
</tr>
<tr>
<td>Screen</td>
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</table>

¹ Preset and Direction high active:
  - Signal level high: ≥ 66% Ub; low: ≤ 15% Ub or unconnected
  - Bounce time preset: >2s
  - Bounce time direction: < 1 ms (dynamic)

² Preset and Direction low active: Signal level high ≤ DC 2 V
**Ordering Information**

To order, complete the model number with code numbers from the table below:

### SSI, CANopen

<table>
<thead>
<tr>
<th></th>
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<td>AR62</td>
<td>0012 12 Bit ST</td>
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<td>L.72 Synchro-Clamping, IP67 10 mm</td>
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<td>1212 12 Bit MT + 12 Bit ST</td>
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<td>L.92 Synchro-Clamping, IP69k, 10 mm</td>
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</table>

1. Other resolution on request
2. Square flange with stainless housing (AR63) on request
4. E1 approval only with interface “OL” CANopen available.
5. M12 Connector not available in stainless steel. IP67 and IP69k only guaranteed if mating plug connected correctly.
6. DNV GL approval only with connection “5”, “8” or “F” available.
7. Maximum operating temperature with connection “F”: -40°C ... +85°C.
8. Connection “5” M12-connector 5-pole only available with interface “OL” CANopen.
9. E1 approval (only available with interface “OL” CANopen)

### ANALOG

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<tr>
<td>AR62</td>
<td>Measuring range in degrees: 0° ... 360°</td>
<td></td>
<td>F DC 17-30 V</td>
<td></td>
<td></td>
<td></td>
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<tr>
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<td>Other on request</td>
<td></td>
<td></td>
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<tr>
<td>AR62/63</td>
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</table>

1. Coding of the measuring range in degree or revolutions.
2. Measuring Range G360 = 360° similar to former definition 0012 = 12 Bit ST.
3. Square flange with stainless housing (AR63) on request.
4. M12 Connector not available in stainless steel. IP67 and IP69k only guaranteed if mating plug connected correctly.
5. DNV GL approval only with connection “5”, “8” or “F” available.
6. Maximum operating temperature with connection “F”: -40°C ... +85°C.
INDUSTRIAL DUTY

ABSOLUTE ENCODERS

SERIES AR62/AR63

DIMENSIONS  inch

[mm]

Synchro Clamping

Ø2.28

[58.0]

φ2.13

[54.0]

φ1.42

[36.0]

φA

0.12

[3.0]

0.59

[15.0]

0.69

[17.4]

Radial Cable

M4 x 6

Ø1.98

[48.0]

3 x 120°

M12 x 1

0.47

[12.0]

Square Flange

Ø0.22

[5.6]

Ø0.37

[9.52]

1.57

[39.9]

0.28

[7.0]

0.77

[19.5]

0.39

[10.0]

1.26

[32.0]

0.12

[3.0]

0.12

[3.0]

0.51

[13.0]

0.69

[17.4]

2.5 ±0.004

[63.5 ±0.1]

2.06 ±0.004

[52.4 ±0.1]

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