



# AHM36A-S2CK014x12

AHS/AHM36

**ABSOLUTE ENCODERS**

**SICK**  
Sensor Intelligence.



### Ordering information

Type	part no.
AHM36A-S2CK014x12	1065997

Other models and accessories → [www.sick.com/AHS\\_AHM36](http://www.sick.com/AHS_AHM36)

Illustration may differ



### Detailed technical data

#### Safety-related parameters

<b>MTTF<sub>D</sub> (mean time to dangerous failure)</b>	270 years (EN ISO 13849-1) <sup>1)</sup>
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<sup>1)</sup> This product is a standard product and does not constitute a safety component as defined in the Machinery Directive. Calculation based on nominal load of components, average ambient temperature 40 °C, frequency of use 8760 h/a. All electronic failures are considered hazardous. For more information, see document no. 8015532.

#### Performance

<b>Number of steps per revolution (max. resolution)</b>	16,384 (14 bit)
<b>Number of revolutions</b>	4,096 (12 bit)
<b>Max. resolution (number of steps per revolution x number of revolutions)</b>	14 bit x 12 bit (16,384 x 4,096)
<b>Error limits G</b>	0.35° (at 20 °C) <sup>1)</sup>
<b>Repeatability standard deviation <math>\sigma_r</math></b>	0.2° (at 20 °C) <sup>2)</sup>

<sup>1)</sup> In accordance with DIN ISO 1319-1, position of the upper and lower error limit depends on the installation situation, specified value refers to a symmetrical position, i.e. deviation in upper and lower direction is the same.

<sup>2)</sup> In accordance with DIN ISO 55350-13; 68.3% of the measured values are inside the specified area.

#### Interfaces

<b>Communication interface</b>	CANopen
<b>Data protocol</b>	CANopen CiA DS-301 V4.02, CiA DSP-305 LSS, Encoder Profile: - CiA DS-406, V3.2. - Class C2
<b>Address setting</b>	0 ... 127, default: 5
<b>Data transmission rate (baud rate)</b>	20 kbit/s ... 1,000 kbit/s, default: 125 kbit/s

<sup>1)</sup> Valid positional data can be read once this time has elapsed.

<sup>2)</sup> See accessories.

<b>Initialization time</b>	2 s <sup>1)</sup>
<b>Process data</b>	Position, speed, Temperature
<b>Parameterising data</b>	Number of steps per revolution Number of revolutions PRESET Counting direction Sampling rate for speed calculation Unit for output of the speed value Round axis functionality Electronic cams(2 channels x 8 cams)
<b>Available diagnostics data</b>	Minimum and maximum temperature Maximum speed Power-on counter Operating hours counter power-on/motion Counter of direction changes/number of movements cw/number of movements ccw Minimum and maximum operating voltage
<b>Status information</b>	CANopen status via status LED
<b>Bus termination</b>	Via external terminator <sup>2)</sup>

<sup>1)</sup> Valid positional data can be read once this time has elapsed.

<sup>2)</sup> See accessories.

## Electronics

<b>Connection type</b>	Cable, 5-wire, universal, 1.5 m
<b>Supply voltage</b>	10 ... 30 V
<b>Power consumption</b>	≤ 1.5 W (without load)
<b>Reverse polarity protection</b>	✓

## Mechanics

<b>Mechanical design</b>	Solid shaft, Servo flange
<b>Shaft diameter</b>	10 mm
<b>Shaft length</b>	12 mm
<b>Characteristics of the shaft</b>	With flat
<b>Weight</b>	0.12 kg <sup>1)</sup>
<b>Shaft material</b>	Stainless steel
<b>Flange material</b>	Aluminum
<b>Housing material</b>	Zinc
<b>Material, cable</b>	PUR
<b>Start up torque</b>	1 Ncm (+20 °C)
<b>Operating torque</b>	< 1 Ncm (+20 °C)
<b>Permissible shaft loading</b>	40 N (radial) 20 N (axial)
<b>Operating speed</b>	≤ 6,000 min <sup>-1</sup> <sup>2)</sup>
<b>Moment of inertia of the rotor</b>	2.5 gcm <sup>2</sup>
<b>Bearing lifetime</b>	3.6 x 10 <sup>8</sup> revolutions
<b>Angular acceleration</b>	≤ 500,000 rad/s <sup>2</sup>

<sup>1)</sup> Based on devices with male connector.

<sup>2)</sup> Allow for self-heating of 3.5 K per 1,000 rpm when designing the operating temperature range.

### Ambient data

<b>EMC</b>	According to EN 61000-6-2 and EN 61000-6-3
<b>Enclosure rating</b>	IP66 (IEC 60529) IP67 (IEC 60529)
<b>Permissible relative humidity</b>	90 % (Condensation not permitted)
<b>Operating temperature range</b>	-40 °C ... +85 °C
<b>Storage temperature range</b>	-40 °C ... +100 °C, without package
<b>Resistance to shocks</b>	100 g, 6 ms (EN 60068-2-27)
<b>Resistance to vibration</b>	20 g, 10 Hz ... 2,000 Hz (EN 60068-2-6)

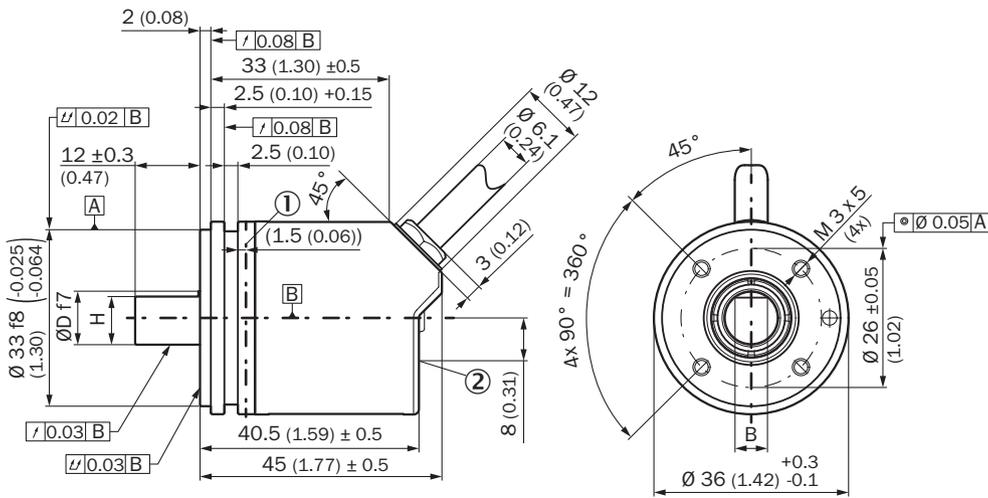
### Certificates

<b>EU declaration of conformity</b>	✓
<b>UK declaration of conformity</b>	✓
<b>ACMA declaration of conformity</b>	✓
<b>Moroccan declaration of conformity</b>	✓
<b>China-RoHS</b>	✓
<b>cTUVus certificate</b>	✓
<b>CANopen certificate</b>	✓
<b>ECE test certificate</b>	✓
<b>Information according to Art. 3 of Data Act (Regulation EU 2023/2854)</b>	✓

### Classifications

<b>ECLASS 5.0</b>	27270502
<b>ECLASS 5.1.4</b>	27270502
<b>ECLASS 6.0</b>	27270590
<b>ECLASS 6.2</b>	27270590
<b>ECLASS 7.0</b>	27270502
<b>ECLASS 8.0</b>	27270502
<b>ECLASS 8.1</b>	27270502
<b>ECLASS 9.0</b>	27270502
<b>ECLASS 10.0</b>	27270502
<b>ECLASS 11.0</b>	27270502
<b>ECLASS 12.0</b>	27270502
<b>ETIM 5.0</b>	EC001486
<b>ETIM 6.0</b>	EC001486
<b>ETIM 7.0</b>	EC001486
<b>ETIM 8.0</b>	EC001486
<b>UNSPSC 16.0901</b>	41112113

Dimensional drawing Solid shaft, servo flange, cable

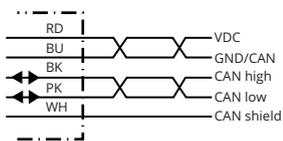


Dimensions in mm (inch)

- ① Measuring point for operating temperature
- ② measuring point for vibrations

Type	Shaft diameter $\varnothing D f7$	B	H
AHx36x-S1xxxxxxxx AHx36x-S3xxxxxxxx	6 mm	3,6 mm	5,4 mm
AHx36x-S9xxxxxxxx AHx36x-S5xxxxxxxx	8 mm	3,9 mm	7,5 mm
AHx36x-S2xxxxxxxx AHx36x-S4xxxxxxxx AHx36x-SCxxxxxxxx	10 mm	6 mm	9 mm
AHx36x-SAxxxxxxxx AHx36x-S8xxxxxxxx	1/4"	3,85 mm	5,7 mm
AHx36x-SBxxxxxxxx AHx36x-S7xxxxxxxx	3/8"	4,35 mm	9 mm

Anschlussbelegung



PIN	Signal	Wire colors (cable connection)	Function
1	CAN Shield	White	Shielding
2	VDC	Red	Supply voltage Encoder 10 V DC ... 30 V DC
3	GND/CAN GND	Blue	0 V (GND)
4	CAN high	Black	CAN signal
5	CAN low	Pink	CAN signal
Housing	-	-	Shielding

### Recommended accessories

Other models and accessories → [www.sick.com/AHS\\_AHM36](http://www.sick.com/AHS_AHM36)

	Brief description	Type	part no.
programming devices			
	<ul style="list-style-type: none"> <li><b>Product segment:</b> Programming devices</li> <li><b>Product family:</b> PGT-12 Pro</li> <li><b>Description:</b> Hand-held programming device for the programmable SICK AHS/AHM36 CANopen encoders, TMS/TMM61 CANopen inclination sensors, TMS/TMM88 CANopen, TMS/TMM88 Analog, and wire draw encoders with AHS/AHM36 CANopen. Compact dimensions, low weight, and intuitive operation.</li> <li><b>Items supplied:</b> 1 x PGT-12-Pro standalone programming tool, 4 x 1.5 V (AA) alkaline mignon batteries</li> </ul>	PGT-12-Pro	1076313

	Brief description	Type	part no.
connectors and cables			
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Flying leads</li> <li>• <b>Connection type head B:</b> Flying leads</li> <li>• <b>Signal type:</b> CANopen, DeviceNet™</li> <li>• <b>Items supplied:</b> By the meter</li> <li>• <b>Cable:</b> 4-wire, twisted pair</li> <li>• <b>Description:</b> CANopen, shielded, DeviceNet™</li> <li>• <b>Note:</b> Wire shield Al-Pt film, overall shield C-screen tin-plated</li> </ul>	LTG-2804-MW	6028328
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 5-pin, straight, A-coded</li> <li>• <b>Signal type:</b> CANopen, DeviceNet™</li> <li>• <b>Description:</b> CANopen, shielded DeviceNet™</li> <li>• <b>Connection systems:</b> Screw-type terminals</li> <li>• <b>Permitted cross-section:</b> ≤ 0.75 mm²</li> </ul>	DOS-1205-GA	6027534
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Male connector, M12, 5-pin, straight, A-coded</li> <li>• <b>Signal type:</b> CANopen, DeviceNet™</li> <li>• <b>Description:</b> CANopen, shielded DeviceNet™</li> <li>• <b>Connection systems:</b> Screw-type terminals</li> <li>• <b>Permitted cross-section:</b> ≤ 0.75 mm²</li> </ul>	STE-1205-GA	6027533
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Male connector, M12, 5-pin, straight</li> <li>• <b>Signal type:</b> CANopen</li> <li>• <b>Description:</b> CANopen, unshielded</li> </ul>	CAN male connector	6021167
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 5-pin, A-coded</li> <li>• <b>Connection type head B:</b> Female connector, M12, 5-pin, A-coded</li> <li>• <b>Connection type head C:</b> Male connector, M12, 5-pin, A-coded</li> <li>• <b>Description:</b> Unshielded</li> </ul>	DSC-1205T000025KMC	6030664
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 5-pin, straight, A-coded</li> <li>• <b>Connection type head B:</b> Flying leads</li> <li>• <b>Signal type:</b> Fieldbus, CANopen, DeviceNet™</li> <li>• <b>Cable:</b> 2 m, 4-wire, PUR, halogen-free</li> <li>• <b>Description:</b> Fieldbus, shielded, CANopen, DeviceNet™</li> <li>• <b>Application:</b> Drag chain operation, Zones with oils and lubricants</li> </ul>	YF2A15-020C1BXLAX	2106283
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 5-pin, straight, A-coded</li> <li>• <b>Connection type head B:</b> Flying leads</li> <li>• <b>Signal type:</b> Fieldbus, CANopen, DeviceNet™</li> <li>• <b>Cable:</b> 5 m, 4-wire, PUR, halogen-free</li> <li>• <b>Description:</b> Fieldbus, shielded, CANopen, DeviceNet™</li> <li>• <b>Application:</b> Drag chain operation, Zones with oils and lubricants</li> </ul>	YF2A15-050C1BXLAX	2106284
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 5-pin, straight, A-coded</li> <li>• <b>Connection type head B:</b> Flying leads</li> <li>• <b>Signal type:</b> Fieldbus, CANopen, DeviceNet™</li> <li>• <b>Cable:</b> 10 m, 4-wire, PUR, halogen-free</li> <li>• <b>Description:</b> Fieldbus, shielded, CANopen, DeviceNet™</li> <li>• <b>Application:</b> Drag chain operation, Zones with oils and lubricants</li> </ul>	YF2A15-100C1BXLAX	2106286
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 5-pin, straight, A-coded</li> <li>• <b>Connection type head B:</b> Male connector, M12, 5-pin, straight, A-coded</li> <li>• <b>Signal type:</b> Fieldbus, CANopen, DeviceNet™</li> <li>• <b>Cable:</b> 2 m, 4-wire, PUR, halogen-free</li> <li>• <b>Description:</b> Fieldbus, shielded, CANopen, DeviceNet™</li> <li>• <b>Application:</b> Drag chain operation, Zones with oils and lubricants</li> </ul>	YF2A15-020C1B-M2A15	2106279
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 5-pin, straight, A-coded</li> <li>• <b>Connection type head B:</b> Male connector, M12, 5-pin, straight, A-coded</li> <li>• <b>Signal type:</b> Fieldbus, CANopen, DeviceNet™</li> <li>• <b>Cable:</b> 5 m, 4-wire, PUR, halogen-free</li> <li>• <b>Description:</b> Fieldbus, shielded, CANopen, DeviceNet™</li> <li>• <b>Application:</b> Drag chain operation, Zones with oils and lubricants</li> </ul>	YF2A15-050C1B-M2A15	2106281
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 5-pin, straight, A-coded</li> <li>• <b>Connection type head B:</b> Male connector, M12, 5-pin, straight, A-coded</li> <li>• <b>Signal type:</b> Fieldbus, CANopen, DeviceNet™</li> <li>• <b>Cable:</b> 10 m, 4-wire, PUR, halogen-free</li> <li>• <b>Description:</b> Fieldbus, shielded, CANopen, DeviceNet™</li> <li>• <b>Application:</b> Drag chain operation, Zones with oils and lubricants</li> </ul>	YF2A15-100C1B-M2A15	2106282
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 5-pin, A-coded</li> <li>• <b>Connection type head B:</b> Female connector, M12, 5-pin, A-coded</li> <li>• <b>Connection type head C:</b> Male connector, M12, 5-pin, A-coded</li> <li>• <b>Cable:</b> 0.5 m, TPU</li> </ul>	Y-CAN cable	6083185

	Brief description	Type	part no.
	<ul style="list-style-type: none"><li>• <b>Description:</b> Shielded</li><li>• <b>Connection type head A:</b> Female connector, terminal box, 8-pin, straight</li><li>• <b>Connection type head B:</b> Female connector, D-Sub, 9-pin, straight</li><li>• <b>Signal type:</b> CANopen</li><li>• <b>Cable:</b> 0.4 m</li><li>• <b>Description:</b> CANopen, shielded</li></ul>	DDL-0D04-G0M5BC9	2083355

	Brief description	Type	part no.
shaft adaptation			
	<ul style="list-style-type: none"> <li><b>Product segment:</b> Shaft adaptation</li> <li><b>Product:</b> Shaft couplings</li> <li><b>Description:</b> Bellows coupling, shaft diameter 6 mm / 10 mm, maximum shaft offset: radial <math>\pm 0.25</math> mm, axial <math>\pm 0.4</math> mm, angular <math>\pm 4^\circ</math>; max. speed 10,000 rpm, <math>-30^\circ\text{C}</math> to <math>+120^\circ\text{C}</math>, max. torque 120 Ncm; material: stainless steel bellows, aluminum hub</li> </ul>	KUP-0610-B	5312982
	<ul style="list-style-type: none"> <li><b>Product segment:</b> Shaft adaptation</li> <li><b>Product:</b> Shaft couplings</li> <li><b>Description:</b> Double loop coupling, shaft diameter 6 mm / 10 mm, max. shaft offset: radially <math>\pm 2.5</math> mm, axially <math>\pm 3</math> mm, angle <math>\pm 10</math> degrees; max. speed 3,000 rpm, <math>-30</math> to <math>+80</math> degrees Celsius, torsional spring stiffness of 25 Nm/rad</li> </ul>	KUP-0610-D	5326697
	<ul style="list-style-type: none"> <li><b>Product segment:</b> Shaft adaptation</li> <li><b>Product:</b> Shaft couplings</li> <li><b>Description:</b> Spring washer coupling, shaft diameter 6 mm / 10 mm, Maximum shaft offset: radial <math>\pm 0.3</math> mm, axial <math>\pm 0.4</math> mm, angular <math>\pm 2.5^\circ</math>; max. speed 12,000 rpm, <math>-10^\circ</math> to <math>+80^\circ\text{C}</math>, max. torque 60 Ncm; material: aluminum flange, glass fiber-reinforced polyamide membrane and hardened steel coupling pin</li> </ul>	KUP-0610-F	5312985
	<ul style="list-style-type: none"> <li><b>Product segment:</b> Shaft adaptation</li> <li><b>Product:</b> Shaft couplings</li> <li><b>Description:</b> Bellows coupling, shaft diameter 10 mm/10 mm; maximum shaft offset: radial <math>\pm 0.25</math> mm, axial <math>\pm 0.4</math> mm, angular <math>\pm 4^\circ</math>; max. revolutions 10,000 rpm, <math>-30^\circ</math> to <math>+120^\circ\text{C}</math>, max. torque 120 Ncm; material: stainless steel bellows, aluminum clamping hubs</li> </ul>	KUP-1010-B	5312983
	<ul style="list-style-type: none"> <li><b>Product segment:</b> Shaft adaptation</li> <li><b>Product:</b> Shaft couplings</li> <li><b>Description:</b> Double loop coupling, shaft diameter 10 mm / 10 mm, Maximum shaft offset: radial <math>\pm 2.5</math> mm, axial <math>\pm 3</math> mm, angular <math>\pm 10^\circ</math>; max. speed 3,000 rpm, <math>-30^\circ</math> to <math>+80^\circ\text{C}</math>, max. torque 1.5 Nm; material: polyurethane, galvanized steel flange</li> </ul>	KUP-1010-D	5326703
	<ul style="list-style-type: none"> <li><b>Product segment:</b> Shaft adaptation</li> <li><b>Product:</b> Shaft couplings</li> <li><b>Description:</b> Spring washer coupling, shaft diameter 10 mm / 10 mm, maximum shaft offset, radial <math>\pm 0.3</math> mm, axial <math>\pm 0.4</math> mm, angle <math>\pm 2.5^\circ</math>, torsion spring stiffness 30 Nm/rad; material: aluminum flange, glass-fiber reinforced polyamide membrane and hardened steel coupling pin</li> </ul>	KUP-1010-F	5312986
	<ul style="list-style-type: none"> <li><b>Product segment:</b> Shaft adaptation</li> <li><b>Product:</b> Shaft couplings</li> <li><b>Description:</b> 10 mm / 12 mm; maximum shaft offset: radial <math>\pm 0.25</math> mm, axial <math>\pm 0.4</math> mm, angular <math>\pm 4^\circ</math>; max. revolutions 10,000 rpm, <math>-30^\circ</math> to <math>+120^\circ\text{C}</math>, max. torque 120 Ncm; material: stainless steel bellows, aluminum clamping hubs</li> </ul>	KUP-1012-B	5312984
	<ul style="list-style-type: none"> <li><b>Product segment:</b> Shaft adaptation</li> <li><b>Product:</b> Shaft couplings</li> <li><b>Description:</b> Double loop coupling, shaft diameter 10 mm / 12 mm, Maximum shaft offset: radial <math>\pm 2.5</math> mm, axial <math>\pm 3</math> mm, angular <math>\pm 10^\circ</math>; max. speed 3,000 rpm, <math>-30^\circ</math> to <math>+80^\circ\text{C}</math>, max. torque 1.5 Nm; material: polyurethane, galvanized steel flange</li> </ul>	KUP-1012-D	5326702
	<ul style="list-style-type: none"> <li><b>Product segment:</b> Shaft adaptation</li> <li><b>Product:</b> Shaft couplings</li> <li><b>Description:</b> Double loop coupling, shaft diameter 8 mm / 10 mm, max. shaft offset: radially <math>\pm 0.25</math> mm, axially <math>\pm 0.4</math> mm, angle <math>\pm 4</math> degrees; max. speed 10,000 rpm, <math>-30</math> to <math>+120</math> degrees Celsius, torsional spring stiffness of 150 Nm/rad</li> </ul>	KUP-0810-D	5326704
	<ul style="list-style-type: none"> <li><b>Product segment:</b> Shaft adaptation</li> <li><b>Product:</b> Shaft couplings</li> <li><b>Description:</b> Claw coupling, shaft diameter 6 mm / 10 mm, damping element 80 shore blue, maximum shaft offset: radial <math>\pm 0.22</math> mm, axial <math>\pm 1</math> mm angular <math>\pm 1.3^\circ</math>, max. speed 19,000 rpm, angle of twist max. <math>10^\circ</math>, <math>-30^\circ\text{C}</math> to <math>+80^\circ\text{C}</math>, max. torque 800 Ncm, tightening torque of screws: ISO 4029 150 Ncm, material: aluminum flange, damping element: polyurethane</li> </ul>	KUP-0610-J	2127056
	<ul style="list-style-type: none"> <li><b>Product segment:</b> Shaft adaptation</li> <li><b>Product:</b> Shaft couplings</li> <li><b>Description:</b> Claw coupling, shaft diameter 8 mm / 10 mm, damping element 80 shore blue, maximum shaft offset: radial <math>\pm 0.22</math> mm, axial <math>\pm 1</math> mm angular <math>\pm 1.3^\circ</math>, max. speed 19,000 rpm, angle of twist max. <math>10^\circ</math>, <math>-30^\circ\text{C}</math> to <math>+80^\circ\text{C}</math>, max. torque 800 Ncm, tightening torque of screws: ISO 4029 150 Ncm, material: aluminum flange, damping element: polyurethane</li> </ul>	KUP-0810-J	2128267
	<ul style="list-style-type: none"> <li><b>Product segment:</b> Shaft adaptation</li> <li><b>Product:</b> Shaft couplings</li> <li><b>Description:</b> Claw coupling, shaft diameter 10 mm / 10 mm, damping element 80 shore blue, maximum shaft offset: radial <math>\pm 0.22</math> mm, axial <math>\pm 1</math> mm angular <math>\pm 1.3^\circ</math>, max. speed 19,000 rpm,</li> </ul>	KUP-1010-J	2127054

	Brief description	Type	part no.
	angle of twist max. 10°, -30 °C to +80 °C, max. torque 800 Ncm, tightening torque of screws: ISO 4029 150 Ncm, material: aluminum flange, damping element: polyurethane		
	<ul style="list-style-type: none"> <li>• <b>Product segment:</b> Shaft adaptation</li> <li>• <b>Product:</b> Shaft couplings</li> <li>• <b>Description:</b> Claw coupling, shaft diameter 10 mm / 12 mm, damping element 80 shore blue, maximum shaft offset: radial ± 0.22 mm, axial ± 1 mm angular ± 1.3°, max. speed 19,000 rpm, angle of twist max. 10°, -30 °C to +80 °C, max. torque 800 Ncm, tightening torque of screws: ISO 4029 150 Ncm, material: aluminum flange, damping element: polyurethane</li> </ul>	KUP-1012-J	2128265

## SICK AT A GLANCE

SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

For us, that is “Sensor Intelligence.”

## WORLDWIDE PRESENCE:

Contacts and other locations –[www.sick.com](http://www.sick.com)