

# DUS60E-RHKK0ABA

DUS60

INCREMENTAL ENCODERS

**SICK**  
Sensor Intelligence.

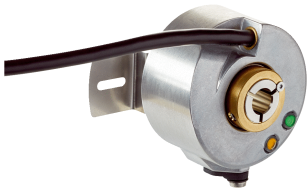


Illustration may differ



### Ordering information

Type	Part no.
DUS60E-RHKK0ABA	1097752

Other models and accessories → [www.sick.com/DUS60](http://www.sick.com/DUS60)

### Detailed technical data

#### Performance

<b>Measuring step</b>	90° electric/pulses per revolution
<b>Measuring step deviation</b>	± 18° / pulses per revolution
<b>Error limits</b>	Measuring step deviation x 3
<b>Duty cycle</b>	≤ 0.5 ± 5 %

#### Interfaces

<b>Communication interface</b>	Incremental
<b>Communication Interface detail</b>	TTL / HTL <sup>1)</sup>
<b>Parameterising data</b>	DIP switch, selectable output
<b>Output function</b>	A and B output
<b>Initialization time</b>	< 5 ms <sup>2)</sup>
<b>Output frequency</b>	+ 60 kHz
<b>Load current</b>	≤ 30 mA, per channel
<b>Operating current</b>	≤ 120 mA (without load)
<b>Power consumption</b>	≤ 1.25 W (without load)
<b>4.5 V... 5.5 V, TTL/RS-422</b>	
Load current	≤ 30 mA, per channel
Operating current	≤ 120 mA (without load)
<b>TTL/RS-422</b>	
Load current	≤ 30 mA, per channel
Power consumption	≤ 1.25 W (without load)
<b>HTL/Push pull</b>	
Load current	≤ 30 mA, per channel
Power consumption	≤ 1.25 W (without load)
<b>TTL/HTL</b>	
Load current	≤ 30 mA, per channel
Power consumption	≤ 1.25 W (without load)
<b>DIP switch parameters</b>	
Pulses per revolution	✓

<sup>1)</sup> The output is not selectable for DIP switch configurations E, F, and G. The output voltage value is dependent on the supply voltage.

<sup>2)</sup> Valid positional data can be read once this time has elapsed.

Output voltage	✓
Direction of rotation	✓
<b>Configuration switches</b>	2048 PPR values, direction selection, TTL/HTL selectable

<sup>1)</sup> The output is not selectable for DIP switch configurations E, F, and G. The output voltage value is dependent on the supply voltage.

<sup>2)</sup> Valid positional data can be read once this time has elapsed.

## Electrical data

<b>Connection type</b>	Cable, 8-wire, universal, 1.5 m <sup>1)</sup>
<b>Supply voltage</b>	4.75 ... 30 V
<b>Reference signal, number</b>	1
<b>Reference signal, position</b>	180°, electric, gated with A
<b>Reverse polarity protection</b>	✓
<b>Short-circuit protection of the outputs</b>	✓
<b>MTTF: mean time to dangerous failure</b>	275 years (EN ISO 13849-1) <sup>2)</sup>

<sup>1)</sup> The universal cable connection is positioned so that it is possible to lay it without bends in a radial or axial direction.

<sup>2)</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.

## Mechanical data

<b>Mechanical design</b>	Through hollow shaft, rear clamping
<b>Shaft diameter</b>	15 mm
<b>Flange type / stator coupling</b>	2-point stator coupling, slot, hole diameter 63 mm – 83 mm
<b>Weight</b>	0.25 kg <sup>1)</sup>
<b>Shaft material</b>	Stainless steel
<b>Flange material</b>	Aluminum
<b>Housing material</b>	Aluminum
<b>Material, cable</b>	PVC
<b>Start up torque</b>	0.5 Ncm (+20 °C)
<b>Operating torque</b>	0.4 Ncm (+20 °C)
<b>Permissible shaft movement, axial static/dynamic</b>	± 0.5 mm / ± 0.2 mm
<b>Permissible shaft movement, radial static/dynamic</b>	± 0.3 mm / ± 0.1 mm
<b>Operating speed</b>	1,500 min <sup>-1</sup>
<b>Moment of inertia of the rotor</b>	50 gcm <sup>2</sup>
<b>Bearing lifetime</b>	3.6 x 10 <sup>9</sup> revolutions
<b>Angular acceleration</b>	≤ 500,000 rad/s <sup>2</sup>

<sup>1)</sup> Relates to encoders with male connector outlet.

## Ambient data

<b>EMC</b>	According to EN 61000-6-2 and EN 61000-6-3
<b>Enclosure rating</b>	IP65 <sup>1)</sup>

<sup>1)</sup> When the mating connector is installed and the DIP switch door is sealed with the encoder housing.

<b>Permissible relative humidity</b>	90 % (condensation of the optical scanning not permitted)
<b>Operating temperature range</b>	-30 °C ... +90 °C
<b>Storage temperature range</b>	-40 °C ... +75 °C
<b>Resistance to shocks</b>	100 g (EN 60068-2-27)
<b>Resistance to vibration</b>	30 g, 10 Hz ... 2,000 Hz (EN 60068-2-6)

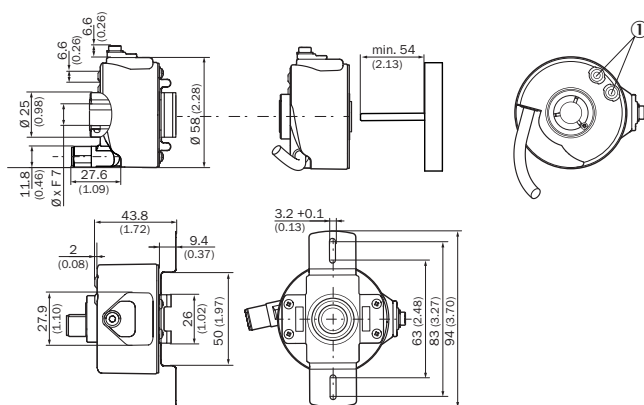
<sup>1)</sup> When the mating connector is installed and the DIP switch door is sealed with the encoder housing.

### Classifications

<b>ECl@ss 5.0</b>	27270501
<b>ECl@ss 5.1.4</b>	27270501
<b>ECl@ss 6.0</b>	27270590
<b>ECl@ss 6.2</b>	27270590
<b>ECl@ss 7.0</b>	27270501
<b>ECl@ss 8.0</b>	27270501
<b>ECl@ss 8.1</b>	27270501
<b>ECl@ss 9.0</b>	27270501
<b>ECl@ss 10.0</b>	27270501
<b>ECl@ss 11.0</b>	27270501
<b>ETIM 5.0</b>	EC001486
<b>ETIM 6.0</b>	EC001486
<b>ETIM 7.0</b>	EC001486
<b>UNSPSC 16.0901</b>	41112113

### Dimensional drawing (Dimensions in mm (inch))

Through hollow shaft with rear clamping

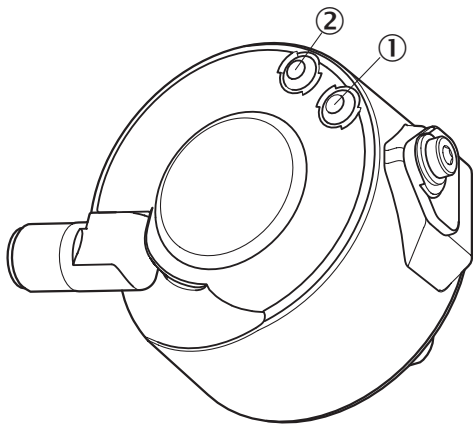


① Status indicators

Type	Shaft diameter XF7
<b>Through hollow shaft with rear clamping</b>	
DUS60x-RAxxxxxxx	6 mm
DUS60x-RBxxxxxxx	8 mm
DUS60x-RCxxxxxxx	3/8"

Type Through hollow shaft with rear clamping	Shaft diameter XF7
DUS60x-RDxxxxxxx	10 mm
DUS60x-RExxxxxxx	12 mm
DuS60x-RFxxxxxxx	1/2"
DUS60x-RGxxxxxxx	14 mm
DUS60x-RHxxxxxxx	15 mm
DUS60x-RJxxxxxxx	5/8"




### Adjustments



### Recommended accessories

Other models and accessories → [www.sick.com/DUS60](http://www.sick.com/DUS60)

	Brief description	Type	Part no.
Plug connectors and cables			
	Head A: female connector, M12, 8-pin, straight Head B: Flying leads Cable: PUR, halogen-free, shielded, 2 m	DOL-1208-G02MAC1	6032866
	Head A: female connector, M12, 8-pin, straight Head B: Flying leads Cable: PUR, halogen-free, shielded, 5 m	DOL-1208-G05MAC1	6032867
	Head A: female connector, M12, 8-pin, straight Head B: Flying leads Cable: PUR, halogen-free, shielded, 10 m	DOL-1208-G10MAC1	6032868
	Head A: female connector, M12, 8-pin, straight Head B: Flying leads Cable: PUR, halogen-free, shielded, 20 m	DOL-1208-G20MAC1	6032869

	Brief description	Type	Part no.
	Head A: female connector, M12, 4-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PUR, halogen-free, shielded, 2 m	YF2A24-020UB4XLEAX	2105499
	Head A: female connector, M12, 4-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PUR, halogen-free, shielded, 5 m	YF2A24-050UB4XLEAX	2095729
	Head A: female connector, M12, 4-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PUR, halogen-free, shielded, 10 m	YF2A24-100UB4XLEAX	2095730
	Head A: female connector, M12, 4-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PUR, halogen-free, shielded, 20 m	YF2A24-200UB4XLEAX	2105497
	Head A: female connector, M12, 5-pin, straight Cable: CANopen, DeviceNet™, shielded	DOS-1205-GA	6027534
	Head A: female connector, M12, 8-pin, straight, A-coded Head B: - Cable: Incremental, SSI, shielded	DOS-1208-GA01	6045001

## 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)