



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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# DFS20A-A2BAD001000

DFS2x

INCREMENTAL ENCODERS

**SICK**  
Sensor Intelligence.



Illustration may differ



### Ordering information

Type	Part no.
DFS20A-A2BAD001000	1068937

Other models and accessories → [www.sick.com/DFS2x](http://www.sick.com/DFS2x)

### Detailed technical data

#### Performance

<b>Pulses per revolution</b>	1,000
<b>Measuring step</b>	90° electronically/ppr
<b>Measuring step deviation</b>	± 0.008°
<b>Error limits</b>	± 0.03°
<b>Initialization time</b>	40 ms

#### Electrical data

<b>Electrical interface</b>	8 V ... 30 V, HTL/Push pull
<b>Connection type</b>	Male connector, radial <sup>1)</sup>
<b>Power consumption</b>	0.7 W (without load)
<b>Output frequency</b>	820 kHz
<b>Reference signal, number</b>	1
<b>Reference signal, position</b>	180°, Degree Marker Gated with BN2
<b>Code sequence</b>	Counterclockwise

<sup>1)</sup> Zero set possible.

#### Mechanical data

<b>Mechanical design</b>	Solid shaft, Square flange
<b>Shaft diameter</b>	3/8"
<b>Weight</b>	0.4 kg (maximum)
<b>Start up torque</b>	0.5 Ncm (+20 °C)
<b>Operating torque</b>	0.3 Ncm (+20 °C)
<b>Permissible shaft loading radial/axial</b>	40 N (axial) 80 N (radial)
<b>Operating speed</b>	9,000 min <sup>-1</sup>
<b>Moment of inertia of the rotor</b>	15 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>
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## Ambient data

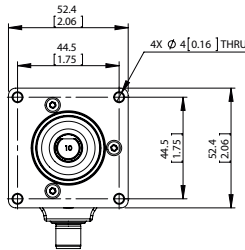
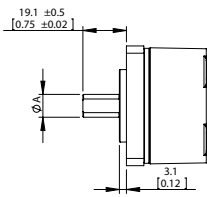
<b>EMC</b>	According to EN 61000-6-2 and EN 61000-6-3
<b>Enclosure rating</b>	IP65 (according to IEC 60529)
<b>Permissible relative humidity</b>	90 % (Condensation not permitted)
<b>Operating temperature range</b>	-30 °C ... +85 °C
<b>Storage temperature range</b>	-40 °C ... +100 °C, without package
<b>Resistance to shocks</b>	100 g, 11 ms (according to EN 60068-2-27)
<b>Resistance to vibration</b>	30 g, 10 Hz ... 2,000 Hz (according to EN 60068-2-6)

## Classifications

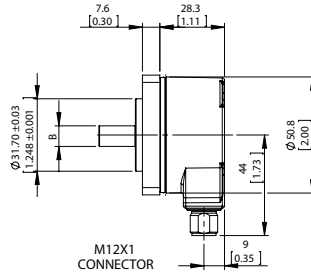
<b>ECl@ss 5.0</b>	27270501
<b>ECl@ss 5.1.4</b>	27270501
<b>ECl@ss 6.0</b>	27270590
<b>ECl@ss 6.2</b>	27270590
<b>ECl@ss 7.0</b>	27270501
<b>ECl@ss 8.0</b>	27270501
<b>ECl@ss 8.1</b>	27270501
<b>ECl@ss 9.0</b>	27270501
<b>ETIM 5.0</b>	EC001486
<b>ETIM 6.0</b>	EC001486
<b>UNSPSC 16.0901</b>	41112113

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

SHAFT OPTIONS		
NOMINAL	SHAFT Ø "A"	FLAT DIM "B"
1/4"	6.327/6.312/2491/2485	5.5[.22]
3/8"	9.507/9.492[.3743/.3737]	8.5[.33]
10MM	9.977/9.962[.3928/.3922]	9[.35]

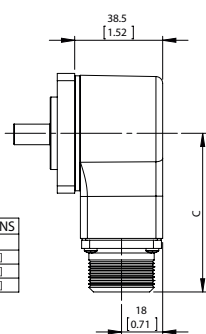


SQUARE FLANGE

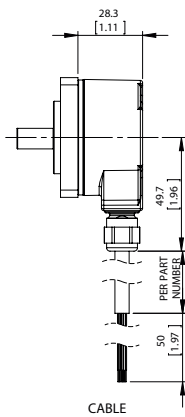


M12X1 CONNECTOR

MIL CONNECTOR OPTIONS	
TYPE	DIM "C"
6 PIN	63.9[2.52]
7 PIN	63.9[2.52]
10 PIN	69.4[2.73]



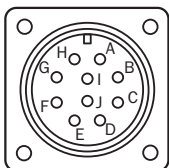
MIL CONNECTOR



CABLE

### PIN assignment

View of the plug-in face



## 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)