



Incremental encoders DFS60, Rotary

DFS60E-BHCL02048



Model Name > DFS60E-BHCL02048
Part No. > 1057170



Illustration may differ

At a glance

- Compact installation depth
- High resolution up to 16 bits
- Optionally programmable: Output voltage, zero pulse position, zero pulse width and number of pulses
- Connection: Radial or axial cable outlet, M23 or M12 connector, axial or radial
- Electrical interfaces: 5V & 24V TTL/RS-422, 24 V HTL/push pull
- Mechanical interfaces: face mount or servo flange, blind or through hollow shaft
- Remote zero set possible

Your benefits

- Reduced storage costs and downtime due to customer-specific programming
- Variety of different mechanical and electrical interfaces enable the encoder to be optimally adjusted to fit the installation situation
- Excellent concentricity even at high speeds
- High resolution of up to 16 bits ensures precise measurements
- Permanent and safe operation due to a high enclosure rating, temperature resistance and a long bearing lifetime
- Programmability via the PGT-08 programming software and the PGT-10-S display programming tool allow the encoder to be adapted flexibly and quickly according to customer needs
- Programmable zero pulse position simplifies installation



Performance

Error limits:	$\pm 0.3^\circ$
Measuring step:	$90^\circ / \text{electronically/number of lines}$
Initialization time:	40 ms
Pulses per revolution:	2,048

Mechanical data

Mechanical interface:	Blind hollow shaft
Shaft diameter:	15 mm
Mass:	0.2 kg
Start up torque:	0.8 Ncm (20 °C)
Operating torque:	0.6 Ncm (20 °C)
Permissible movement axial static/dynamic:	$\pm 0.5 \text{ mm}, \pm 0.2 \text{ mm}$
Permissible movement radial static/dynamic:	$\pm 0.3 \text{ mm}, \pm 0.1 \text{ mm}$
Maximum operating speed:	6,000 /min

Moment of inertia of the rotor:	40 gcm ²
Bearing lifetime:	3.6 x 10 ¹⁰ revolutions
Max. angular acceleration:	500,000 rad/s ²
Shaft material:	Metal

Electrical data

Electrical interface:	10 V ... 32 V, TTL/RS422, Cable, 8-pin, universal, 3 m
Connection type:	Cable, 8-pin, universal, 3 m ¹⁾
Maximum output frequency:	300 kHz
Reference signal, number:	1
Reference signal, position:	90 °, electronically, gated with A and B
Operating voltage range:	10 V ... 32 V
Load current max.:	30 mA
Power consumption:	0.5 W (without load)
MTTFd: mean time to dangerous failure:	300 a (EN ISO 13849-1) ²⁾

¹⁾ The universal cable outlet is positioned in such a way, that it is possible to lay the cable in a radial or axial direction without kinking it ²⁾ 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.

Ambient data

EMC:	(according to EN 61000-6-2 and EN 61000-6-3)
Working temperature range:	0 °C ... 85 °C
Storage temperature range:	-40 °C ... 100 °C, without package
Resistance to shocks:	50 g (according to EN 60068-2-27)
Resistance to vibration:	20 g, 10 Hz ... 2,000 Hz (according to EN 60068-2-6)
Enclosure rating:	IP 65 (according to IEC 60529), shaft side, IP 67 (according to IEC 60529)
Permissible relative humidity:	90 % (condensation of the optical scanning not permitted)

|1| Cable diameter = 5,6 mm
+/- 2 mm Bending radius = 30 mm



View of M12 device connector on encoder

^a Only at 4.5 ... 32 V, TTL/HTL programmable

The SET input serves to carry out the zero pulse teach function. If the SET input is applied to U₃ for longer than 250 ms, after it has been open for at least 1,000 ms or applied to GND, the current shaft position is assigned the zero pulse signal "Z".

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Drehzahlbetrachtung



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