



## Motor feedback systems rotary incremental VFS60

VFS60E-BFNK01024



**Model Name** > VFS60E-BFNK01024  
**Part No.** > -\*



*Illustration may differ*

\* When ordering for the first time, please use the information in "Model Name" instead of "Part No."

#### At a glance

- TTL, HTL or sine 0.5 VSS interfaces
- Resolution of up to 65,536 lines per revolution
- Individual programming of the interface, line count and of the zero pulse
- Direct programming via RS485
- Excellent concentricity through large distance between the ball bearings
- Exceptional robustness and protection class IP 65
- Mechanical flexibility through blind hollow shaft and through hollow shafts with diameters of 8 to 15 mm, available with various torque supports
- Temperature range from -30 °C to +100 °C

#### Your benefits

- Programmable version for a reduced product variety
- Various programming tools designed to take into account your own programming requirements
- High performance and reliability even in rough ambient conditions
- Large ball bearing distances reduce uneven wear and minimize vibration on the motor feedback housing, which increases the motor feedback system's service life
- High vibration resistance and extended temperature range through nickel code disk



#### Performance

|                                 |                                               |
|---------------------------------|-----------------------------------------------|
| Number of lines per revolution: | 1,024                                         |
| Reference signal, number:       | 1                                             |
| Reference signal, position:     | 90 ° electronically, gated with Sin. and Cos. |
| Error limits:                   | ± 0.3 °                                       |
| Measuring step deviation:       | ± 0.2 °                                       |
| Maximum initialisation time:    | 40 ms                                         |

#### Mechanical data

|                              |                    |
|------------------------------|--------------------|
| Shaft version:               | Blind hollow shaft |
| Shaft diameter:              | 1/2 "              |
| Shaft material:              | Metal              |
| Shaft plug-in length:        | 15 mm ... 42 mm    |
| Flange type/stator coupling: | Standard           |

|                                              |                                           |
|----------------------------------------------|-------------------------------------------|
| Dimensions:                                  | See dimensional drawing                   |
| Mass:                                        | 0.2 kg                                    |
| Moment of inertia of the rotor:              | 40 gcm <sup>2</sup>                       |
| Maximum operating speed:                     | 6,000 /min <sup>1)</sup>                  |
| Maximum angular acceleration:                | 500,000 rad/s <sup>2</sup>                |
| Operating torque:                            | 0.6 Ncm (20 °C)                           |
| Start up torque:                             | 0.8 Ncm (20 °C)                           |
| Permissible shaft movement, radial, dynamic: | ± 0.1 mm                                  |
| Permissible shaft movement, axial, dynamic:  | ± 0.2 mm                                  |
| Life of ball bearings:                       | 3.0 x 10 <sup>9</sup> revolutions         |
| Connection type:                             | Cable, 8-pin, radial, 1.5 m <sup>2)</sup> |

<sup>1)</sup> Self-warming 3.3 K/1,000 1/min, when applying note working temperature range <sup>2)</sup> 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

## Electrical data

|                                                |                     |
|------------------------------------------------|---------------------|
| Electrical interface:                          | Sinus 0.5 VPP       |
| Operating voltage range/supply Voltage:        | 4.5 V ... 5.5 V     |
| Maximum output frequency:                      | 200 kHz             |
| Load resistance:                               | 120 Ω               |
| Signal SIN COS before differential generation: | 0.5 V ± 20 %        |
| Signal Z before differential generation LOW:   | 1.6 V ± 15 %        |
| Signal Z before differential generation HIGH:  | 2.9 V ± 15 %        |
| Signal offset Z:                               | 2.5 V ± 10 %        |
| Operating power consumption (no load):         | 40 mA <sup>1)</sup> |

<sup>1)</sup> Without load

## Interfaces

|                    |                                                                                                                                                             |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Interface signals: | Process data channel SIN, SIN <sub>-</sub> , COS, COS <sub>-</sub> : analog, differential,<br>Process data channel Z, Z <sub>-</sub> : digital differential |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|

## Ambient data

|                                 |                                                                                                       |
|---------------------------------|-------------------------------------------------------------------------------------------------------|
| Working temperature range:      | -30 °C ... 100 °C                                                                                     |
| Storage temperature range:      | -40 °C ... 100 °C, without package                                                                    |
| Relative humidity/Condensation: | 90 %, condensation of the optical scanning not permitted                                              |
| Resistance to shocks:           | 70 g, 6 ms (according to EN 60068-2-27)                                                               |
| Resistance to vibration:        | 30 g, 10 Hz ... 2,000 Hz (according to EN 60068-2-6)                                                  |
| EMC:                            | (according to EN 61000-6-2 and EN 61000-6-3)                                                          |
| Enclosure rating:               | IP 65 (according to IEC 60529), shaft side, IP 67 (according to IEC 60529), housing side cable outlet |

Dimensional drawing



**Australia**

Phone +61 3 9457 0600  
1800 334 802 – tollfree  
E-Mail sales@sick.com.au

**Belgium/Luxembourg**

Phone +32 (0)2 466 55 66  
E-Mail info@sick.be

**Brasil**

Phone +55 11 3215-4900  
E-Mail sac@sick.com.br

**Canada**

Phone +1 905 771 14 44  
E-Mail information@sick.com

**Ceská Republika**

Phone +420 2 57 91 18 50  
E-Mail sick@sick.cz

**China**

Phone +86 4000 121 000  
E-Mail info.china@sick.net.cn  
Phone +852-2153 6300  
E-Mail ghk@sick.com.hk

**Danmark**

Phone +45 45 82 64 00  
E-Mail sick@sick.dk

**Deutschland**

Phone +49 211 5301-301  
E-Mail kundenservice@sick.de

**España**

Phone +34 93 480 31 00  
E-Mail info@sick.es

**France**

Phone +33 1 64 62 35 00  
E-Mail info@sick.fr

**Great Britain**

Phone +44 (0)1727 831121  
E-Mail info@sick.co.uk

**India**

Phone +91-22-4033 8333  
E-Mail info@sick-india.com

**Israel**

Phone +972-4-6801000  
E-Mail info@sick-sensors.com

**Italia**

Phone +39 02 27 43 41  
E-Mail info@sick.it

**Japan**

Phone +81 (0)3 3358 1341  
E-Mail support@sick.jp

**Magyarország**

Phone +36 1 371 2680  
E-Mail office@sick.hu

**Nederlands**

Phone +31 (0)30 229 25 44  
E-Mail info@sick.nl

**Norge**

Phone +47 67 81 50 00  
E-Mail austefjord@sick.no

**Österreich**

Phone +43 (0)22 36 62 28 8-0  
E-Mail office@sick.at

**Polska**

Phone +48 22 837 40 50  
E-Mail info@sick.pl

**România**

Phone +40 356 171 120  
E-Mail office@sick.ro

**Russia**

Phone +7-495-775-05-30  
E-Mail info@sick.ru

**Schweiz**

Phone +41 41 619 29 39  
E-Mail contact@sick.ch

**Singapore**

Phone +65 6744 3732  
E-Mail admin@sicksgp.com.sg

**Slovenija**

Phone +386 (0)1-47 69 990  
E-Mail office@sick.si

**South Africa**

Phone +27 11 472 3733  
E-Mail info@sickautomation.co.za

**South Korea**

Phone +82 2 786 6321/4  
E-Mail info@sickkorea.net

**Suomi**

Phone +358-9-25 15 800  
E-Mail sick@sick.fi

**Sverige**

Phone +46 10 110 10 00  
E-Mail info@sick.se

**Taiwan**

Phone +886-2-2375-6288  
E-Mail sales@sick.com.tw

**Türkiye**

Phone +90 (216) 528 50 00  
E-Mail info@sick.com.tr

**United Arab Emirates**

Phone +971 (0) 4 8865 878  
E-Mail info@sick.ae

**USA/México**

Phone +1(952) 941-6780  
1 800-325-7425 – tollfree  
E-Mail info@sickusa.com

More representatives and agencies  
at [www.sick.com](http://www.sick.com)