



## Motor feedback systems rotary incremental VFS60

VFS60E-BENK01024



**Model Name** > [VFS60E-BENK01024](#)  
**Part No.** > [1061122](#)



*Illustration may differ*

#### 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:              | 12 mm                   |
| 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_, COS, COS_: analog, differential,<br>Process data channel Z, Z_: 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



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