



VFS60E-BHCJ01024

VFS60

MOTOR FEEDBACK SYSTEMS ROTARY INCREMENTAL

**SICK**  
Sensor Intelligence.



Illustration may differ



## Ordering information

| Type             | Part no. |
|------------------|----------|
| VFS60E-BHCJ01024 | 1036455  |

Other models and accessories → [www.sick.com/VFS60](http://www.sick.com/VFS60)

## Detailed technical data

### Performance

|                                       |                                            |
|---------------------------------------|--------------------------------------------|
| <b>Number of lines per revolution</b> | 1,024                                      |
| <b>Reference signal, number</b>       | 1                                          |
| <b>Reference signal, position</b>     | 90° electric, logically gated with A and B |
| <b>Measuring step deviation</b>       | ± 0.2°                                     |

### Interfaces

|                                |             |
|--------------------------------|-------------|
| <b>Communication interface</b> | Incremental |
|--------------------------------|-------------|

### Electrical data

|                                 |                                            |
|---------------------------------|--------------------------------------------|
| <b>Connection type</b>          | Cable, 8-wire, radial, 0.5 m <sup>1)</sup> |
| <b>Supply voltage</b>           | 10 V ... 32 V                              |
| <b>Power consumption</b>        | 40 mA <sup>2)</sup>                        |
| <b>Maximum output frequency</b> | ≤ 300 kHz                                  |
| <b>Maximum load current</b>     | ≤ 30 mA                                    |

<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> Without load.

### Mechanical data

|                                       |                                       |
|---------------------------------------|---------------------------------------|
| <b>Shaft version</b>                  | Blind hollow shaft                    |
| <b>Shaft diameter</b>                 | 15 mm                                 |
| <b>Shaft material</b>                 | Metal                                 |
| <b>Flange type / stator coupling</b>  | Standard                              |
| <b>Dimensions</b>                     | See dimensional drawing               |
| <b>Weight</b>                         | 0.2 kg                                |
| <b>Moment of inertia of the rotor</b> | 40 gcm <sup>2</sup>                   |
| <b>Operating speed</b>                | 6,000 min <sup>-1</sup> <sup>1)</sup> |
| <b>Angular acceleration</b>           | ≤ 500,000 rad/s <sup>2</sup>          |
| <b>Operating torque</b>               | 0.6 Ncm (+20 °C)                      |

<sup>1)</sup> Allow for self-heating of 3.3 K per 1,000 rpm when designing the operating temperature range.

|                                                           |                                   |
|-----------------------------------------------------------|-----------------------------------|
| <b>Start up torque</b>                                    | 0.8 Ncm (+20 °C)                  |
| <b>Permissible movement of the drive element, static</b>  | ± 0.3 mm radial<br>± 0.5 mm axial |
| <b>Permissible movement of the drive element, dynamic</b> | ± 0.1 mm radial<br>± 0.2 mm axial |
| <b>Life of ball bearings</b>                              | 3.0 x 10 <sup>9</sup> revolutions |

<sup>1)</sup> Allow for self-heating of 3.3 K per 1,000 rpm when designing the operating temperature range.

#### Ambient data

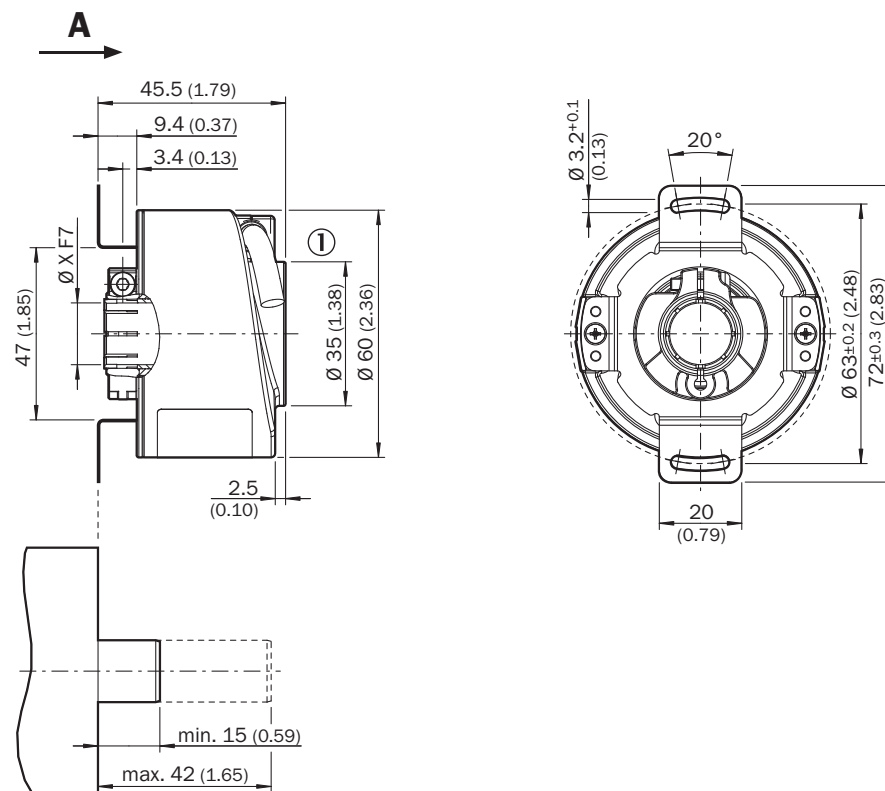
|                                                    |                                                                                                            |
|----------------------------------------------------|------------------------------------------------------------------------------------------------------------|
| <b>Operating temperature range</b>                 | -30 °C ... +100 °C                                                                                         |
| <b>Storage temperature range</b>                   | -40 °C ... +100 °C, without package                                                                        |
| <b>Relative humidity/condensation</b>              | 90 %, condensation of the optical scanning not permitted                                                   |
| <b>Resistance to shocks</b>                        | 70 g, 6 ms (according to EN 60068-2-27)                                                                    |
| <b>Frequency range of resistance to vibrations</b> | 30 g, 10 Hz ... 2,000 Hz (according to EN 60068-2-6)                                                       |
| <b>EMC</b>                                         | According to EN 61000-6-2 and EN 61000-6-4                                                                 |
| <b>Enclosure rating</b>                            | IP65, shaft side (according to IEC 60529)<br>IP67, housing side, cable connection (according to IEC 60529) |

#### Classifications

|                       |          |
|-----------------------|----------|
| <b>ECI@ss 5.0</b>     | 27270501 |
| <b>ECI@ss 5.1.4</b>   | 27270501 |
| <b>ECI@ss 6.0</b>     | 27270590 |
| <b>ECI@ss 6.2</b>     | 27270590 |
| <b>ECI@ss 7.0</b>     | 27270501 |
| <b>ECI@ss 8.0</b>     | 27270501 |
| <b>ECI@ss 8.1</b>     | 27270501 |
| <b>ECI@ss 9.0</b>     | 27270501 |
| <b>ECI@ss 10.0</b>    | 27273805 |
| <b>ECI@ss 11.0</b>    | 27273901 |
| <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))

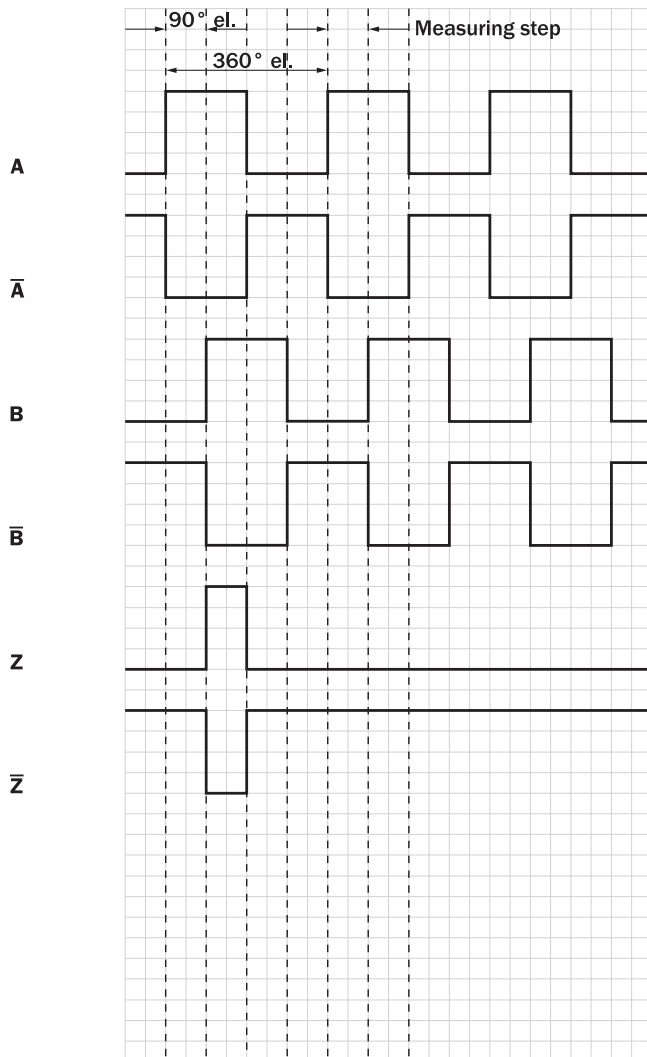
Blind hollow shaft, cable



General tolerances according to DIN ISO 2768-mk

① Cable diameter = 5.6 mm +/- 0.2 mm bend radius = 30 mm

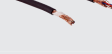
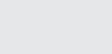
## Diagrams



## Recommended accessories

Other models and accessories → [www.sick.com/VFS60](http://www.sick.com/VFS60)

|                                                                                     | Brief description                                                                     | Type            | Part no. |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|-----------------|----------|
| Flanges                                                                             |                                                                                       |                 |          |
|  | One-sided stator coupling, slot, slot radius 33 mm to 48.5 mm, slot width 5.1 mm      | BEF-DS01DFS/VFS | 2047428  |
|  | One-sided stator coupling, slot, slot radius 32.25 mm to 141.75 mm, slot width 5.1 mm | BEF-DS02DFS/VFS | 2047430  |
|  | One-sided stator coupling, slot, slot radius 33 mm to 211.9 mm, slot width 5.1 mm     | BEF-DS03DFS/VFS | 2047431  |

|                                                                                     | Brief description                                                                                                                     | Type             | Part no. |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|------------------|----------|
| Programming and configuration tools                                                 |                                                                                                                                       |                  |          |
|    | SVip® LAN programming tool for all motor feedback systems                                                                             | PGT-11-S LAN     | 1057324  |
| Plug connectors and cables                                                          |                                                                                                                                       |                  |          |
|    | Head A: cable<br>Head B: Flying leads<br>Cable: SSI, Incremental, HIPERFACE®, PUR, halogen-free, shielded                             | LTG-2308-MWENC   | 6027529  |
|    | Head A: cable<br>Head B: Flying leads<br>Cable: SSI, Incremental, PUR, shielded                                                       | LTG-2411-MW      | 6027530  |
|    | Head A: cable<br>Head B: Flying leads<br>Cable: SSI, Incremental, PUR, halogen-free, shielded                                         | LTG-2512-MW      | 6027531  |
|    | Head A: cable<br>Head B: Flying leads<br>Cable: SSI, TTL, HTL, Incremental, PUR, halogen-free, shielded                               | LTG-2612-MW      | 6028516  |
|    | Head A: female connector, JST, 8-pin, straight<br>Head B: Flying leads<br>Cable: Incremental, PUR, halogen-free, shielded, 3 m        | DOL-0J08-G03MAA3 | 2046875  |
|                                                                                     | Head A: female connector, JST, 8-pin, straight<br>Head B: Flying leads<br>Cable: Incremental, SSI, PUR, halogen-free, shielded, 5 m   | DOL-0J08-G05MAA3 | 2046876  |
|                                                                                     | Head A: female connector, JST, 8-pin, straight<br>Head B: Flying leads<br>Cable: Incremental, SSI, PUR, halogen-free, shielded, 0.5 m | DOL-0J08-G0M5AA3 | 2046873  |
|                                                                                     | Head A: female connector, JST, 8-pin, straight<br>Head B: Flying leads<br>Cable: Incremental, SSI, PUR, halogen-free, shielded, 10 m  | DOL-0J08-G10MAA3 | 2046877  |
|                                                                                     | Head A: female connector, JST, 8-pin, straight<br>Head B: Flying leads<br>Cable: Incremental, PUR, halogen-free, shielded, 1.5 m      | DOL-0J08-G1M5AA3 | 2046874  |
|  | Head A: female connector, M23, 12-pin, straight<br>Head B: Flying leads<br>Cable: Incremental, PUR, shielded, 2 m                     | DOL-2312-G02MLA3 | 2030682  |
|  | Head A: female connector, M23, 12-pin, straight<br>Head B: Flying leads<br>Cable: Incremental, PUR, halogen-free, shielded, 3 m       | DOL-2312-G03MMA3 | 2029213  |
|                                                                                     | Head A: female connector, M23, 12-pin, straight<br>Head B: Flying leads<br>Cable: Incremental, PUR, halogen-free, shielded, 5 m       | DOL-2312-G05MMA3 | 2029214  |
|  | Head A: female connector, M23, 12-pin, straight<br>Head B: Flying leads<br>Cable: Incremental, PUR, shielded, 7 m                     | DOL-2312-G07MLA3 | 2030685  |
|                                                                                     | Head A: female connector, M23, 12-pin, straight<br>Head B: Flying leads<br>Cable: Incremental, PUR, shielded, 10 m                    | DOL-2312-G10MLA3 | 2030688  |
|  | Head A: female connector, M23, 12-pin, straight<br>Head B: Flying leads<br>Cable: Incremental, PUR, halogen-free, shielded, 10 m      | DOL-2312-G10MMA3 | 2029215  |
|  | Head A: female connector, M23, 12-pin, straight<br>Head B: Flying leads<br>Cable: Incremental, PUR, shielded, 15 m                    | DOL-2312-G15MLA3 | 2030692  |

|                                                                                     | Brief description                                                                                                                                          | Type             | Part no. |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|----------|
|    | Head A: female connector, M23, 12-pin, straight<br>Head B: Flying leads<br>Cable: Incremental, PUR, halogen-free, shielded, 1.5 m                          | DOL-2312-G1M5MA3 | 2029212  |
|    | Head A: female connector, M23, 12-pin, straight<br>Head B: Flying leads<br>Cable: Incremental, PUR, shielded, 20 m                                         | DOL-2312-G20MLA3 | 2030695  |
|    | Head A: female connector, M23, 12-pin, straight<br>Head B: Flying leads<br>Cable: Incremental, PUR, halogen-free, shielded, 20 m                           | DOL-2312-G20MMA3 | 2029216  |
|    | Head A: female connector, M23, 12-pin, straight<br>Head B: Flying leads<br>Cable: Incremental, PUR, shielded, 25 m                                         | DOL-2312-G25MLA3 | 2030699  |
|    | Head A: female connector, M23, 12-pin, straight<br>Head B: Flying leads<br>Cable: Incremental, PUR, shielded, 30 m                                         | DOL-2312-G30MLA3 | 2030702  |
|    | Head A: female connector, M23, 12-pin, straight<br>Head B: Flying leads<br>Cable: Incremental, PUR, halogen-free, shielded, 30 m                           | DOL-2312-G30MMA3 | 2029217  |
|    | Head A: male connector, M12, 5-pin, angled, B-coded<br>Head B: Flying leads<br>Cable: PROFIBUS DP, twisted pair, PUR, halogen-free, shielded, 5 m          | STL-1205-W05MQ   | 6041426  |
|    | Head A: male connector, M12, 5-pin, angled, B-coded<br>Head B: Flying leads<br>Cable: PROFIBUS DP, twisted pair, PUR, halogen-free, shielded, 10 m         | STL-1205-W10MQ   | 6041427  |
|    | Head A: female connector, JST, 8-pin, straight<br>Head B: male connector, M23, 17-pin, straight<br>Cable: Incremental, unshielded, 1 m                     | DSL-2317-G01MJB7 | 2071332  |
|  | Head A: female connector, terminal box, 8-pin, straight<br>Head B: male connector, M23, 17-pin, straight<br>Cable: Incremental, unshielded, 1 m            | DSL-2317-G01MJC7 | 2071331  |
|  | Head A: female connector, JST, 8-pin, straight<br>Head B: male connector, M23, 12-pin, straight<br>Cable: Incremental, PUR, halogen-free, shielded, 1 m    | STL-2312-G01MAA3 | 2061622  |
|  | Head A: female connector, JST, 8-pin, straight<br>Head B: male connector, M23, 12-pin, straight<br>Cable: Incremental, PUR, halogen-free, shielded, 2 m    | STL-2312-G02MAA3 | 2061504  |
|  | Head A: female connector, JST, 8-pin, straight<br>Head B: male connector, M23, 12-pin, straight<br>Cable: Incremental, PUR, halogen-free, shielded, 0.35 m | STL-2312-GM35AA3 | 2061621  |
|  | Head A: female connector, M23, 9-pin, straight<br>Cable: HIPERFACE®, SSI, Incremental, shielded                                                            | DOS-2309-G       | 6028533  |
|  | Head A: female connector, M23, 12-pin, straight<br>Head B: -<br>Cable: HIPERFACE®, SSI, Incremental, shielded                                              | DOS-2312-G       | 6027538  |
|  | Head A: female connector, M23, 12-pin, angled<br>Head B: -<br>Cable: HIPERFACE®, SSI, Incremental, shielded                                                | DOS-2312-W01     | 2072580  |
|  | Head A: male connector, M23, 12-pin, straight<br>Head B: -<br>Cable: HIPERFACE®, SSI, Incremental, RS-422, shielded                                        | STE-2312-G       | 6027537  |

## 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.”**

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