

# VFS60B-T4AK01024

VFS60

**MOTOR FEEDBACK SYSTEMS ROTARY INCREMENTAL**

**SICK**  
Sensor Intelligence.



Illustration may differ



### Ordering information

| Type             | Part no. |
|------------------|----------|
| VFS60B-T4AK01024 | 1036013  |

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>Error limits</b>                   | ± 0.05°                                    |
| <b>Measuring step deviation</b>       | ± 0.01°                                    |
| <b>Maximum initialisation time</b>    | ≤ 40 ms                                    |

#### Interfaces

|                                |           |
|--------------------------------|-----------|
| <b>Communication interface</b> | TTL/RS422 |
|--------------------------------|-----------|

#### Electrical data

|  |                       |
|--|-----------------------|
| <b>Supply voltage range</b>                  | 4.5 V ... 5.5 V       |
| <b>Operating power consumption (no load)</b> | ≤ 40 mA <sup>1)</sup> |
| <b>Maximum output frequency</b>              | ≤ 600 kHz             |
| <b>Maximum load current</b>                  | ≤ 30 mA               |

<sup>1)</sup> Without load.

#### Mechanical data

|                                       |  |
|---------------------------------------|--|
| <b>Shaft material</b>                 | Plastic                                |
| <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>                | 12,000 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)                       |
| <b>Start up torque</b>                | 0.8 Ncm (+20 °C)                       |

<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.

|  |  |
|--|--|
| <b>Permissible shaft movement, radial static/dynamic</b> | ± 0.3 mm / ± 0.1 mm                        |
| <b>Permissible shaft movement, axial static/dynamic</b>  | ± 0.5 mm / ± 0.2 mm                        |
| <b>Life of ball bearings</b>                             | 3.0 x 10 <sup>9</sup> revolutions          |
| <b>Connection type</b>                                   | Cable, 8-wire, 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.

#### Ambient data

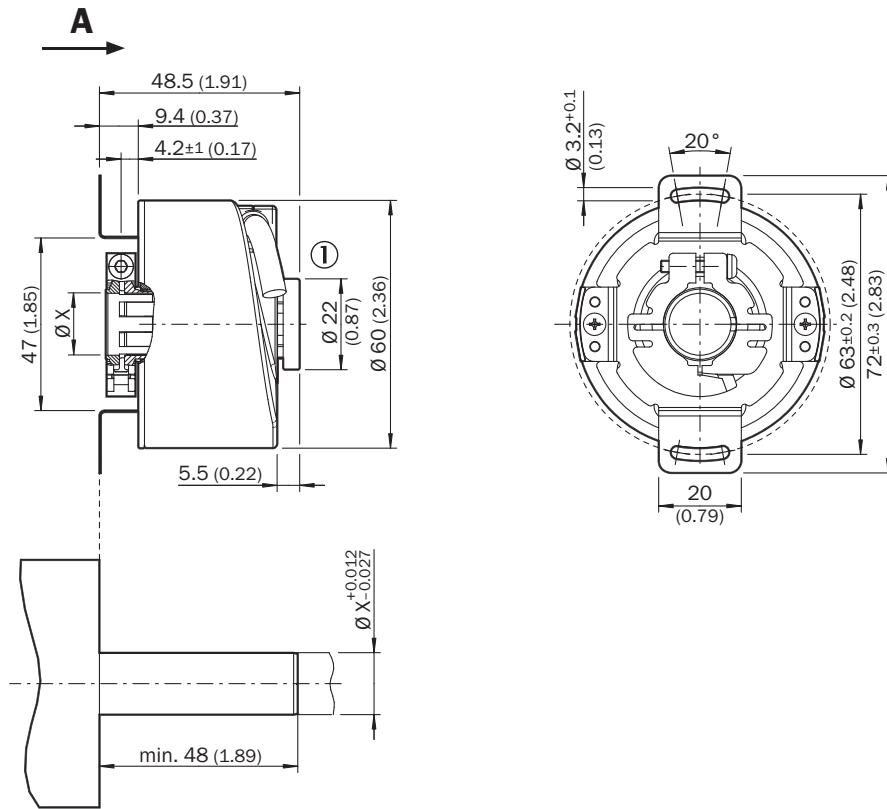
|  |  |
|--|--|
| <b>Operating temperature range</b>                 | -30 °C ... +100 °C   |
| <b>Storage temperature range</b>                   | -40 °C ... +100 °C, without package  |
| <b>Relative humidity/condensation</b>              | 90 %, condensation of the optical scanning not permitted   |
| <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>IP65, housing side, cable outlet (according to IEC 60529) |

#### 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 |

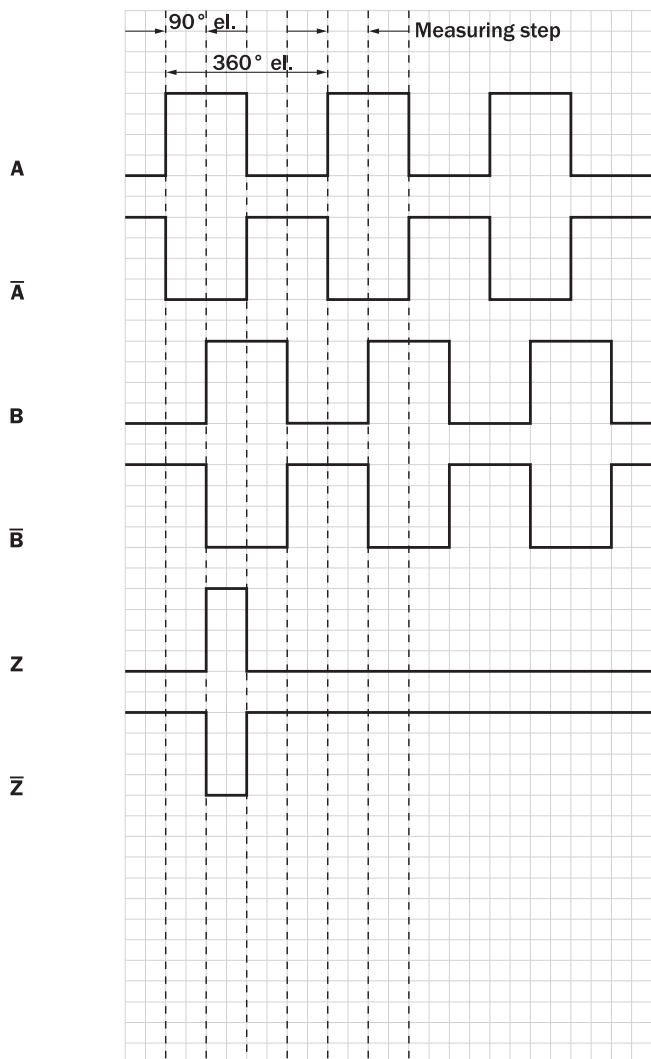
### Dimensional drawing (Dimensions in mm (inch))

Through hollow shaft, plastic, cable outlet






General tolerances according to DIN ISO 2768-mk

Diagram



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. |
|---|--|------------------|----------|
| <b>Plug connectors and cables</b>   |  |                  |          |
|    | Head A: cable<br>Head B: cable<br>Cable: SSI, drag chain use, PUR, halogen-free, shielded  | LTG-2308-MWENC   | 6027529  |
|    | Head A: cable<br>Head B: cable<br>Cable: SSI, PUR, shielded  | LTG-2411-MW      | 6027530  |
|    | Head A: cable<br>Head B: cable<br>Cable: SSI, drag chain use, PUR, halogen-free, shielded  | LTG-2512-MW      | 6027531  |
|    | Head A: cable<br>Head B: cable<br>Cable: SSI, drag chain use, PUR, halogen-free, shielded  | LTG-2612-MW      | 6028516  |
|    | Head A: female connector, JST, 8-pin, straight<br>Head B: cable<br>Cable: Incremental, drag chain use, PUR, halogen-free, shielded, 3 m        | DOL-0J08-G03MAA3 | 2046875  |
|    | Head A: female connector, JST, 8-pin, straight<br>Head B: cable<br>Cable: Incremental, SSI, drag chain use, PUR, halogen-free, shielded, 5 m   | DOL-0J08-G05MAA3 | 2046876  |
|    | Head A: female connector, JST, 8-pin, straight<br>Head B: cable<br>Cable: Incremental, SSI, drag chain use, PUR, halogen-free, shielded, 0.5 m | DOL-0J08-G0M5AA3 | 2046873  |
|   | Head A: female connector, JST, 8-pin, straight<br>Head B: cable<br>Cable: Incremental, SSI, drag chain use, PUR, halogen-free, shielded, 10 m  | DOL-0J08-G10MAA3 | 2046877  |
|  | Head A: female connector, JST, 8-pin, straight<br>Head B: cable<br>Cable: Incremental, drag chain use, PUR, halogen-free, shielded, 1.5 m      | DOL-0J08-G1M5AA3 | 2046874  |
|  | Head A: female connector, M23, 12-pin, straight<br>Head B: cable<br>Cable: Incremental, PUR, shielded, 2 m                                     | DOL-2312-G02MLA3 | 2030682  |
|  | Head A: female connector, M23, 12-pin, straight<br>Head B: cable<br>Cable: Incremental, drag chain use, PUR, shielded, 3 m                     | DOL-2312-G03MMA3 | 2029213  |
|  | Head A: female connector, M23, 12-pin, straight<br>Head B: cable<br>Cable: Incremental, drag chain use, PUR, shielded, 5 m                     | DOL-2312-G05MMA3 | 2029214  |
|  | Head A: female connector, M23, 12-pin, straight<br>Head B: cable<br>Cable: Incremental, PUR, shielded, 7 m                                     | DOL-2312-G07MLA3 | 2030685  |
|  | Head A: female connector, M23, 12-pin, straight<br>Head B: cable<br>Cable: Incremental, PUR, shielded, 10 m                                    | DOL-2312-G10MLA3 | 2030688  |
|  | Head A: female connector, M23, 12-pin, straight<br>Head B: cable<br>Cable: Incremental, drag chain use, PUR, shielded, 10 m                    | DOL-2312-G10MMA3 | 2029215  |
|  | Head A: female connector, M23, 12-pin, straight<br>Head B: cable<br>Cable: Incremental, PUR, shielded, 15 m                                    | DOL-2312-G15MLA3 | 2030692  |
|  | Head A: female connector, M23, 12-pin, straight<br>Head B: cable<br>Cable: Incremental, drag chain use, PUR, shielded, 1.5 m                   | DOL-2312-G1M5MA3 | 2029212  |
|  | Head A: female connector, M23, 12-pin, straight<br>Head B: cable<br>Cable: Incremental, PUR, shielded, 20 m                                    | DOL-2312-G20MLA3 | 2030695  |

|   | Brief description  | Type             | Part no. |
|---|--|------------------|----------|
|    | Head A: female connector, M23, 12-pin, straight<br>Head B: cable<br>Cable: Incremental, drag chain use, PUR, shielded, 20 m  | DOL-2312-G20MMA3 | 2029216  |
|    | Head A: female connector, M23, 12-pin, straight<br>Head B: cable<br>Cable: Incremental, PUR, shielded, 25 m  | DOL-2312-G25MLA3 | 2030699  |
|    | Head A: female connector, M23, 12-pin, straight<br>Head B: cable<br>Cable: Incremental, PUR, shielded, 30 m  | DOL-2312-G30MLA3 | 2030702  |
|    | Head A: female connector, M23, 12-pin, straight<br>Head B: cable<br>Cable: Incremental, drag chain use, PUR, shielded, 30 m  | DOL-2312-G30MMA3 | 2029217  |
|    | Head A: male connector, M12, 5-pin, angled, B-coded<br>Head B: cable<br>Cable: PROFIBUS DP, drag chain use, twisted pair, PUR, shielded, 5 m                               | STL-1205-W05MQ   | 6041426  |
|    | Head A: male connector, M12, 5-pin, angled, B-coded<br>Head B: cable<br>Cable: PROFIBUS DP, drag chain use, twisted pair, PUR, 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, drag chain use, 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, drag chain use, 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, drag chain use, PUR, halogen-free, shielded, 0.35 m | STL-2312-GM35AA3 | 2061621  |
|  | 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  |
| <b>Programming and configuration tools</b>  |  |                  |          |
|  | SVip® LAN programming tool for all motor feedback systems  | PGT-11-S LAN     | 1057324  |
|  | SVip® WLAN programming tool for all motor feedback systems   | PGT-11-S WLAN    | 1067474  |

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