



# VFS60A-TDPJ01024

VFS60

MOTOR FEEDBACK SYSTEMS

**SICK**  
Sensor Intelligence.



### Ordering information

| Type             | part no. |
|------------------|----------|
| VFS60A-TDPJ01024 | 1037366  |

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

Illustration may differ



### Detailed technical data

#### Performance

|                                       |  |
|---------------------------------------|--|
| <b>Number of lines per revolution</b> | 1,024 <sup>1)</sup>                        |
| <b>Reference signal, number</b>       | 1  |
| <b>Reference signal, position</b>     | 90° electric, logically gated with A and B |
| <b>Measuring step deviation</b>       | ± 0.01°                                    |

<sup>1)</sup> Factory programmed number of lines: 1024, level of output signal: TTL.

#### Interfaces

|                                |             |
|--------------------------------|-------------|
| <b>Communication interface</b> | Incremental |
| <b>Initialization time</b>     | 30 ms       |

#### Electronics

|                                 |  |
|---------------------------------|--|
| <b>Connection type</b>          | Cable, 8-wire, radial, 0.5 m <sup>1)</sup> |
| <b>Supply voltage</b>           | 4.5 V ... 32 V                             |
| <b>Current consumption</b>      | 60 mA <sup>2)</sup>                        |
| <b>Maximum output frequency</b> | ≤ 820 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.

#### Mechanics

|                                      |                         |
|--------------------------------------|-------------------------|
| <b>Shaft version</b>                 | Through hollow shaft    |
| <b>Shaft diameter</b>                | 10 mm                   |
| <b>Shaft material</b>                | Metal                   |
| <b>Flange type / stator coupling</b> | Standard                |
| <b>Dimensions</b>                    | See dimensional drawing |

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

|                                       |                                       |
|---------------------------------------|---------------------------------------|
| <b>Weight</b>                         | + 0.2 kg                              |
| <b>Moment of inertia of the rotor</b> | 40 gcm <sup>2</sup>                   |
| <b>Operating speed</b>                | 9,000 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)                    |
| <b>Permissible movement static</b>    | ± 0.3 mm, radial<br>± 0.5 mm, axial   |
| <b>Permissible movement dynamic</b>   | ± 0.1 mm, radial<br>± 0.01 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 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 (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 (IEC 60529)<br>IP65, housing side, cable connection (IEC 60529) |

### Certificates

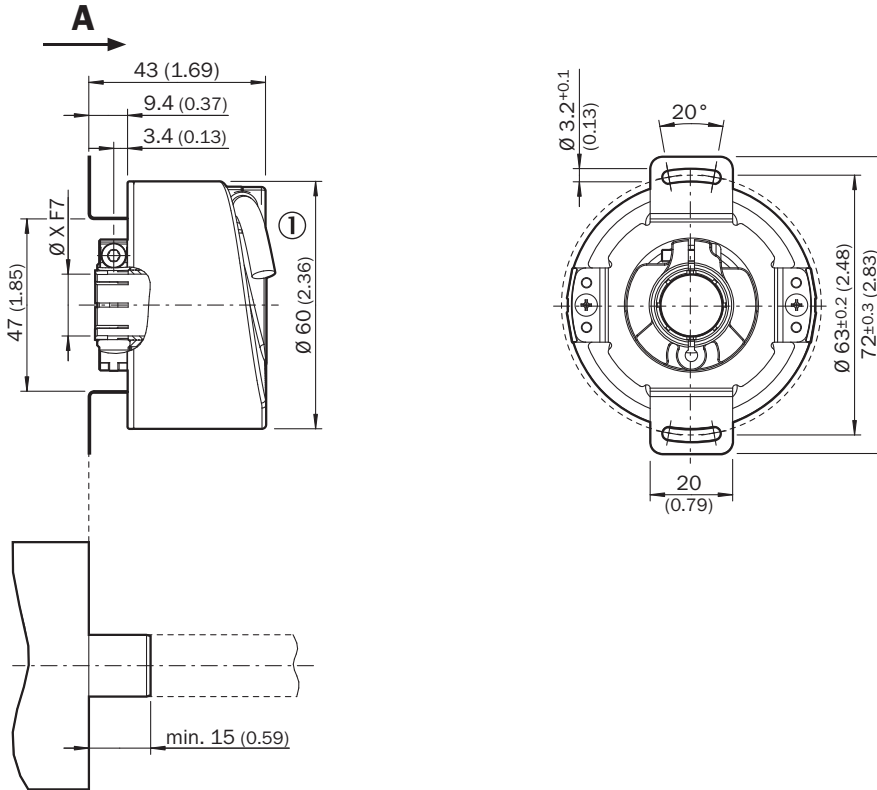
|  |   |
|--|---|
| <b>EU declaration of conformity</b>  | ✓ |
| <b>UK declaration of conformity</b>  | ✓ |
| <b>ACMA declaration of conformity</b>  | ✓ |
| <b>Moroccan declaration of conformity</b>                                    | ✓ |
| <b>China RoHS</b>  | ✓ |
| <b>cULus certificate</b>   | ✓ |
| <b>Information according to Art. 3 of Data Act (Regulation EU 2023/2854)</b> | ✓ |

### Classifications

|                     |          |
|---------------------|----------|
| <b>ECLASS 5.0</b>   | 27270501 |
| <b>ECLASS 5.1.4</b> | 27270501 |
| <b>ECLASS 6.0</b>   | 27270590 |
| <b>ECLASS 6.2</b>   | 27270590 |
| <b>ECLASS 7.0</b>   | 27270501 |
| <b>ECLASS 8.0</b>   | 27270501 |
| <b>ECLASS 8.1</b>   | 27270501 |
| <b>ECLASS 9.0</b>   | 27270501 |
| <b>ECLASS 10.0</b>  | 27273805 |
| <b>ECLASS 11.0</b>  | 27273901 |
| <b>ECLASS 12.0</b>  | 27273901 |

|                       |          |
|-----------------------|----------|
| <b>ETIM 5.0</b>       | EC001486 |
| <b>ETIM 6.0</b>       | EC001486 |
| <b>ETIM 7.0</b>       | EC001486 |
| <b>ETIM 8.0</b>       | EC001486 |
| <b>UNSPSC 16.0901</b> | 41112113 |

### Dimensional drawing



Dimensions in mm (inch)

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. |
|---|---|------------------|----------|
| connectors and cables   |   |                  |          |
|    | <ul style="list-style-type: none"> <li><b>Description:</b> Incremental, unshielded</li> <li><b>Connection type head A:</b> Female connector, JST, 8-pin, straight</li> <li><b>Connection type head B:</b> Male connector, M23, 17-pin, straight</li> <li><b>Signal type:</b> Incremental</li> <li><b>Cable:</b> 1 m, 8-wire</li> </ul>  | DSL-2317-G01MJB7 | 2071332  |
|    | <ul style="list-style-type: none"> <li><b>Description:</b> Incremental, unshielded</li> <li><b>Connection type head A:</b> Female connector, terminal box, 8-pin, straight</li> <li><b>Connection type head B:</b> Male connector, M23, 17-pin, straight</li> <li><b>Signal type:</b> Incremental</li> <li><b>Cable:</b> 1 m, 8-wire</li> </ul>   | DSL-2317-G01MJC7 | 2071331  |
|    | <ul style="list-style-type: none"> <li><b>Description:</b> SSI, shielded, Incremental, HIPERFACE®</li> <li><b>Connection type head A:</b> Flying leads</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> SSI, Incremental, HIPERFACE®</li> <li><b>Items supplied:</b> By the meter</li> <li><b>Cable:</b> 8-wire, PUR, halogen-free</li> </ul>                          | LTG-2308-MWENC   | 6027529  |
|    | <ul style="list-style-type: none"> <li><b>Description:</b> SSI, shielded, Incremental</li> <li><b>Connection type head A:</b> Flying leads</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> SSI, Incremental</li> <li><b>Items supplied:</b> By the meter</li> <li><b>Cable:</b> 11-wire, PUR</li> </ul>   | LTG-2411-MW      | 6027530  |
|    | <ul style="list-style-type: none"> <li><b>Description:</b> SSI, shielded, Incremental</li> <li><b>Connection type head A:</b> Flying leads</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> SSI, Incremental</li> <li><b>Items supplied:</b> By the meter</li> <li><b>Cable:</b> 12-wire, PUR, halogen-free</li> </ul>   | LTG-2512-MW      | 6027531  |
|  | <ul style="list-style-type: none"> <li><b>Description:</b> SSI, shielded, TTL, HTL, Incremental</li> <li><b>Connection type head A:</b> Flying leads</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> SSI, TTL, HTL, Incremental</li> <li><b>Items supplied:</b> By the meter</li> <li><b>Cable:</b> 12-wire, UV and saltwater-resistant, PUR, halogen-free</li> </ul> | LTG-2612-MW      | 6028516  |
|  | <ul style="list-style-type: none"> <li><b>Description:</b> Incremental, shielded, SSI</li> <li><b>Connection type head A:</b> Female connector, JST, 8-pin, straight</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Incremental, SSI</li> <li><b>Items supplied:</b> JST including sealing</li> <li><b>Cable:</b> 0.5 m, 8-wire, PUR, halogen-free</li> </ul>        | DOL-0J08-G0M5AA3 | 2046873  |
|  | <ul style="list-style-type: none"> <li><b>Description:</b> Incremental, shielded</li> <li><b>Connection type head A:</b> Female connector, JST, 8-pin, straight</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Incremental</li> <li><b>Items supplied:</b> JST including sealing</li> <li><b>Cable:</b> 1.5 m, 8-wire, PUR, halogen-free</li> </ul>                  | DOL-0J08-G1M5AA3 | 2046874  |
|  | <ul style="list-style-type: none"> <li><b>Description:</b> Incremental, shielded</li> <li><b>Connection type head A:</b> Female connector, JST, 8-pin, straight</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Incremental</li> <li><b>Items supplied:</b> JST including sealing</li> <li><b>Cable:</b> 3 m, 8-wire, PUR, halogen-free</li> </ul>                    | DOL-0J08-G03MAA3 | 2046875  |
|  | <ul style="list-style-type: none"> <li><b>Description:</b> Incremental, shielded, SSI</li> <li><b>Connection type head A:</b> Female connector, JST, 8-pin, straight</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Incremental, SSI</li> <li><b>Items supplied:</b> JST including sealing</li> <li><b>Cable:</b> 5 m, 8-wire, PUR, halogen-free</li> </ul>          | DOL-0J08-G05MAA3 | 2046876  |
|  | <ul style="list-style-type: none"> <li><b>Description:</b> Incremental, shielded, SSI</li> <li><b>Connection type head A:</b> Female connector, JST, 8-pin, straight</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Incremental, SSI</li> <li><b>Items supplied:</b> JST including sealing</li> </ul>  | DOL-0J08-G10MAA3 | 2046877  |

|   | Brief description  | Type             | part no. |
|---|--|------------------|----------|
|    | <ul style="list-style-type: none"> <li><b>Cable:</b> 10 m, 8-wire, PUR, halogen-free</li> <li><b>Description:</b> HIPERFACE<sup>®</sup>, shielded, SSI, Incremental</li> <li><b>Connection type head A:</b> Female connector, M23, 12-pin, straight, A-coded</li> <li><b>Signal type:</b> HIPERFACE<sup>®</sup>, SSI, Incremental</li> <li><b>Connection systems:</b> Solder connection</li> </ul> | DOS-2312-G       | 6027538  |
|    | <ul style="list-style-type: none"> <li><b>Description:</b> HIPERFACE<sup>®</sup>, shielded, SSI, Incremental, RS-422</li> <li><b>Connection type head A:</b> Male connector, M23, 12-pin, straight, A-coded</li> <li><b>Signal type:</b> HIPERFACE<sup>®</sup>, SSI, Incremental, RS-422</li> <li><b>Connection systems:</b> Solder connection</li> </ul>  | STE-2312-G       | 6027537  |
|    | <ul style="list-style-type: none"> <li><b>Description:</b> Incremental, shielded</li> <li><b>Connection type head A:</b> Female connector, M23, 12-pin, straight</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Incremental</li> <li><b>Cable:</b> 2 m, 11-wire, PUR</li> <li><b>Application:</b> Zones with oils and lubricants</li> </ul>                     | DOL-2312-G02MLA3 | 2030682  |
|    | <ul style="list-style-type: none"> <li><b>Description:</b> Incremental, shielded</li> <li><b>Connection type head A:</b> Female connector, M23, 12-pin, straight</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Incremental</li> <li><b>Cable:</b> 7 m, 11-wire, PUR</li> <li><b>Application:</b> Zones with oils and lubricants</li> </ul>                     | DOL-2312-G07MLA3 | 2030685  |
|    | <ul style="list-style-type: none"> <li><b>Description:</b> Incremental, shielded</li> <li><b>Connection type head A:</b> Female connector, M23, 12-pin, straight</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Incremental</li> <li><b>Cable:</b> 10 m, 11-wire, PUR</li> <li><b>Application:</b> Zones with oils and lubricants</li> </ul>                    | DOL-2312-G10MLA3 | 2030688  |
|    | <ul style="list-style-type: none"> <li><b>Description:</b> Incremental, shielded</li> <li><b>Connection type head A:</b> Female connector, M23, 12-pin, straight</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Incremental</li> <li><b>Cable:</b> 15 m, 11-wire, PUR</li> <li><b>Application:</b> Zones with oils and lubricants</li> </ul>                    | DOL-2312-G15MLA3 | 2030692  |
|  | <ul style="list-style-type: none"> <li><b>Description:</b> Incremental, shielded</li> <li><b>Connection type head A:</b> Female connector, M23, 12-pin, straight</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Incremental</li> <li><b>Cable:</b> 20 m, 11-wire, PUR</li> <li><b>Application:</b> Zones with oils and lubricants</li> </ul>                    | DOL-2312-G20MLA3 | 2030695  |
|  | <ul style="list-style-type: none"> <li><b>Description:</b> Incremental, shielded</li> <li><b>Connection type head A:</b> Female connector, M23, 12-pin, straight</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Incremental</li> <li><b>Cable:</b> 25 m, 11-wire, PUR</li> <li><b>Application:</b> Zones with oils and lubricants</li> </ul>                    | DOL-2312-G25MLA3 | 2030699  |
|  | <ul style="list-style-type: none"> <li><b>Description:</b> Incremental, shielded</li> <li><b>Connection type head A:</b> Female connector, M23, 12-pin, straight</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Incremental</li> <li><b>Cable:</b> 30 m, 11-wire, PUR</li> <li><b>Application:</b> Zones with oils and lubricants</li> </ul>                    | DOL-2312-G30MLA3 | 2030702  |
|  | <ul style="list-style-type: none"> <li><b>Description:</b> Incremental, shielded</li> <li><b>Connection type head A:</b> Female connector, M23, 12-pin, straight</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Incremental</li> <li><b>Cable:</b> 1.5 m, 12-wire, PUR, halogen-free</li> <li><b>Application:</b> Zones with oils and lubricants</li> </ul>     | DOL-2312-G1M5MA3 | 2029212  |
|  | <ul style="list-style-type: none"> <li><b>Description:</b> Incremental, shielded</li> <li><b>Connection type head A:</b> Female connector, M23, 12-pin, straight</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Incremental</li> <li><b>Cable:</b> 3 m, 12-wire, PUR, halogen-free</li> <li><b>Application:</b> Zones with oils and lubricants</li> </ul>       | DOL-2312-G03MMA3 | 2029213  |
|  | <ul style="list-style-type: none"> <li><b>Description:</b> Incremental, shielded</li> <li><b>Connection type head A:</b> Female connector, M23, 12-pin, straight</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Incremental</li> <li><b>Cable:</b> 5 m, 12-wire, PUR, halogen-free</li> </ul>   | DOL-2312-G05MMA3 | 2029214  |

|   | Brief description   | Type                | part no. |
|---|---|---------------------|----------|
|    | <ul style="list-style-type: none"> <li><b>Application:</b> Zones with oils and lubricants</li> <li><b>Description:</b> Incremental, shielded</li> <li><b>Connection type head A:</b> Female connector, M23, 12-pin, straight</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Incremental</li> <li><b>Cable:</b> 10 m, 12-wire, PUR, halogen-free</li> <li><b>Application:</b> Zones with oils and lubricants</li> </ul> | DOL-2312-G10MMA3    | 2029215  |
|    | <ul style="list-style-type: none"> <li><b>Description:</b> Incremental, shielded</li> <li><b>Connection type head A:</b> Female connector, M23, 12-pin, straight</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Incremental</li> <li><b>Cable:</b> 20 m, 12-wire, PUR, halogen-free</li> <li><b>Application:</b> Zones with oils and lubricants</li> </ul>   | DOL-2312-G20MMA3    | 2029216  |
|    | <ul style="list-style-type: none"> <li><b>Description:</b> Incremental, shielded</li> <li><b>Connection type head A:</b> Female connector, M23, 12-pin, straight</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Incremental</li> <li><b>Cable:</b> 30 m, 12-wire, PUR, halogen-free</li> <li><b>Application:</b> Zones with oils and lubricants</li> </ul>   | DOL-2312-G30MMA3    | 2029217  |
|    | <ul style="list-style-type: none"> <li><b>Description:</b> Incremental, shielded</li> <li><b>Connection type head A:</b> Female connector, JST, 8-pin, straight</li> <li><b>Connection type head B:</b> Male connector, M23, 12-pin, straight</li> <li><b>Signal type:</b> Incremental</li> <li><b>Cable:</b> 2 m, 8-wire, PUR, halogen-free</li> </ul>   | STL-2312-G02MAA3    | 2061504  |
|    | <ul style="list-style-type: none"> <li><b>Description:</b> Incremental, shielded</li> <li><b>Connection type head A:</b> Female connector, JST, 8-pin, straight</li> <li><b>Connection type head B:</b> Male connector, M23, 12-pin, straight</li> <li><b>Signal type:</b> Incremental</li> <li><b>Cable:</b> 0.35 m, 8-wire, PUR, halogen-free</li> </ul>  | STL-2312-GM35AA3    | 2061621  |
|    | <ul style="list-style-type: none"> <li><b>Description:</b> Incremental, shielded</li> <li><b>Connection type head A:</b> Female connector, JST, 8-pin, straight</li> <li><b>Connection type head B:</b> Male connector, M23, 12-pin, straight</li> <li><b>Signal type:</b> Incremental</li> <li><b>Cable:</b> 1 m, 8-wire, PUR, halogen-free</li> </ul>   | STL-2312-G01MAA3    | 2061622  |
|  | <ul style="list-style-type: none"> <li><b>Description:</b> HIPERFACE<sup>®</sup>, shielded, SSI, Incremental</li> <li><b>Connection type head A:</b> Female connector, M23, 12-pin, angled, A-coded</li> <li><b>Signal type:</b> HIPERFACE<sup>®</sup>, SSI, Incremental</li> <li><b>Connection systems:</b> Solder connection</li> </ul>   | DOS-2312-W01        | 2072580  |
|  | <ul style="list-style-type: none"> <li><b>Description:</b> HIPERFACE<sup>®</sup>, shielded, SSI, Incremental</li> <li><b>Connection type head A:</b> Female connector, M23, 9-pin, straight, A-coded</li> <li><b>Signal type:</b> HIPERFACE<sup>®</sup>, SSI, Incremental</li> <li><b>Connection systems:</b> Solder connection</li> </ul>  | DOS-2309-G          | 6028533  |
|  | <ul style="list-style-type: none"> <li><b>Connection type head A:</b> Male connector, M12, 2-pin, angled, B-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Fieldbus, PROFIBUS DP</li> <li><b>Cable:</b> 5 m, 2-wire, PUR, halogen-free</li> <li><b>Description:</b> Fieldbus, shielded, PROFIBUS DP</li> <li><b>Application:</b> Drag chain operation, Zones with oils and lubricants</li> </ul>                 | YN2B22-050P-B1XLEAX | 2106277  |
|  | <ul style="list-style-type: none"> <li><b>Connection type head A:</b> Male connector, M12, 2-pin, angled, B-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Fieldbus, PROFIBUS DP</li> <li><b>Cable:</b> 10 m, 2-wire, PUR, halogen-free</li> <li><b>Description:</b> Fieldbus, shielded, PROFIBUS DP</li> <li><b>Application:</b> Drag chain operation, Zones with oils and lubricants</li> </ul>                | YN2B22-100P-B1XLEAX | 2106278  |

|   | Brief description  | Type            | part no. |
|---|--|-----------------|----------|
| Mounting systems  |  |                 |          |
|  | <ul style="list-style-type: none"> <li><b>Product family:</b> Stator couplings</li> <li><b>Description:</b> One-sided stator coupling, slot, slot radius 33 mm to 48.5 mm, slot width 5.1 mm</li> </ul>  | BEF-DS01DFS/VFS | 2047428  |
|  | <ul style="list-style-type: none"> <li><b>Product family:</b> Stator couplings</li> <li><b>Description:</b> One-sided stator coupling, slot, slot radius 32.25 mm to 141.75 mm, slot width 5.1 mm</li> </ul>   | BEF-DS02DFS/VFS | 2047430  |
|  | <ul style="list-style-type: none"> <li><b>Product family:</b> Stator couplings</li> <li><b>Description:</b> One-sided stator coupling, slot, slot radius 33 mm to 211.9 mm, slot width 5.1 mm</li> </ul>   | BEF-DS03DFS/VFS | 2047431  |
| programming devices   |  |                 |          |
|  | <ul style="list-style-type: none"> <li><b>Product segment:</b> Programming devices</li> <li><b>Product:</b> PGT-11-S</li> <li><b>Description:</b> SVip® LAN programming tool for all motor feedback systems</li> <li><b>Items supplied:</b> 1x programming tool PGT-11-S LAN, 1x power supply unit 100-240 V AC / 12 V DC, primary adapter (Europe, UK, USA/Japan, Australia), Ethernet cable 3 m</li> </ul> | PGT-11-S LAN    | 1057324  |

## 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.”

## WORLDWIDE PRESENCE:

Contacts and other locations –[www.sick.com](http://www.sick.com)