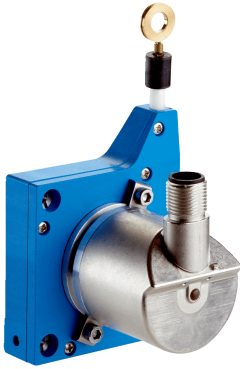


# BCG05-A1NMS02

EcoLine

WIRE DRAW ENCODERS

**SICK**  
Sensor Intelligence.



### Ordering information

| Type          | Part no. |
|---------------|----------|
| BCG05-A1NMS02 | 1105105  |

**Included in delivery:** AHM36A-SDPCF00S35 (1)

Product is supplied fully assembled. See individual components for further technical data

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



### Detailed technical data

#### Features

|                                  |                                       |
|----------------------------------|---------------------------------------|
| <b>Special device</b>            | ✓                                     |
| <b>Specialty</b>                 | Without wire coating<br>Firmware 1.03 |
| <b>Standard reference device</b> | BCG05-A1NM0155, 1068864               |

#### Performance

|   |                          |
|---|--------------------------|
| <b>Measurement range</b>                | 0 m ... 1.25 m           |
| <b>Encoder</b>                          | Absolute encoders        |
| <b>Resolution (wire draw + encoder)</b> | 0.02 mm <sup>1) 2)</sup> |
| <b>Repeatability</b>                    | ≤ 0.2 mm <sup>3)</sup>   |
| <b>Linearity</b>                        | ≤ ± 2 mm <sup>3)</sup>   |
| <b>Hysteresis</b>                       | ≤ 0.4 mm <sup>3)</sup>   |

<sup>1)</sup> The values shown have been rounded.

<sup>2)</sup> Example calculation based on the BCG08 with PROFINET: 230 mm (wire draw length per revolution - see Mechanical data): 262,144 (number of steps per revolution) = 0.001 mm (resolution of wire draw + encoder combination).

<sup>3)</sup> Value applies to wire draw mechanism.

#### Interfaces

|                                  |     |
|----------------------------------|-----|
| <b>Communication interface</b>   | SSI |
| <b>Programmable/configurable</b> | ✓   |

#### Electrical data

|  |  |
|--|--|
| <b>Connection type</b>                       | Male connector, M12, 8-pin, universal    |
| <b>Supply voltage</b>                        | 4.5 V DC ... 32 V DC                     |
| <b>Power consumption</b>                     | ≤ 1.5 W (without load)                   |
| <b>MTTFd: mean time to dangerous failure</b> | 230 years (EN ISO 13849-1) <sup>1)</sup> |

<sup>1)</sup> This product is a standard product and does not constitute a safety component as defined in the Machinery Directive. Calculation based on nominal load of components, average ambient temperature 40°C, frequency of use 8760 h/a. All electronic failures are considered hazardous. For more information, see document no. 8015532.

## Mechanical data

|   |   |
|---|---|
| <b>Weight</b>                                   | 0.2 kg  |
| <b>Measuring wire material</b>                  | Highly flexible stranded steel 1,4401 stainless steel V4A |
| <b>Weight (measuring wire)</b>                  | 0.58 g/m  |
| <b>Housing material, wire draw mechanism</b>    | Plastic, Noryl  |
| <b>Spring return force</b>                      | 1 N ... 1.4 N <sup>1)</sup>                               |
| <b>Length of wire pulled out per revolution</b> | 150 mm  |
| <b>Life of wire draw mechanism</b>              | Typ. 1,000,000 cycles <sup>2) 3)</sup>                    |
| <b>Actual wire draw length</b>                  | 1.45 m  |
| <b>Wire acceleration</b>                        | 10 m/s <sup>2</sup>                                       |
| <b>Operating speed</b>                          | 6 m/s   |
| <b>Mounted encoder</b>                          | AHM36 SSI, AHM36A-SDPCF00S35, 1105086                     |
| <b>Mounted mechanic</b>                         | MRA-G055-101D4S02, 5339378                                |

<sup>1)</sup> These values were measured at an ambient temperature of 25 °C. There may be variations at other temperatures.

<sup>2)</sup> Average values, which depend on the application.

<sup>3)</sup> The service life depends on the type of load. This is influenced by environmental conditions, the installation location, the measuring range in use, the traversing speed, and acceleration.

## Ambient data

|                                    |  |
|------------------------------------|--|
| <b>EMC</b>                         | According to EN 61000-6-2 and EN 61000-6-3                                       |
| <b>Enclosure rating</b>            | IP50, mounted mechanic<br>IP66, Encoder (IEC 60529)<br>IP67, Encoder (IEC 60529) |
| <b>Operating temperature range</b> | -30 °C ... +70 °C  |

## Classifications








|                       |          |
|-----------------------|----------|
| <b>ECLASS 5.0</b>     | 27270590 |
| <b>ECLASS 5.1.4</b>   | 27270590 |
| <b>ECLASS 6.0</b>     | 27270590 |
| <b>ECLASS 6.2</b>     | 27270590 |
| <b>ECLASS 7.0</b>     | 27270590 |
| <b>ECLASS 8.0</b>     | 27270590 |
| <b>ECLASS 8.1</b>     | 27270590 |
| <b>ECLASS 9.0</b>     | 27270590 |
| <b>ECLASS 10.0</b>    | 27270613 |
| <b>ECLASS 11.0</b>    | 27270503 |
| <b>ECLASS 12.0</b>    | 27270503 |
| <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 |





| PIN | Wire colors (cable connection) | Signal | Explanation   |
|-----|--------------------------------|--------|---|
|     |                                | Screen | Screen connected to housing on encoder side. Connected to ground on control side. |

## Recommended accessories

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

|   | Brief description   | Type               | Part no. |
|---|---|--------------------|----------|
| <b>Programming and configuration tools</b>  |   |                    |          |
|    | USB programming unit, for programmable SICK encoders AFS60, AFM60, DFS60, VFS60, DFV60 and wire draw encoders with programmable encoders  | PGT-08-S           | 1036616  |
|    | Programming unit display for programmable SICK DFS60, DFV60, AFS/AFM60, AHS/AHM36 encoders, and wire draw encoder with DFS60, AFS/AFM60 and AHS/AHM36. Compact dimensions, low weight, and intuitive operation.   | PGT-10-Pro         | 1072254  |
| <b>Wire draw mechanism</b>  |   |                    |          |
|    | EcoLine wire draw mechanism for servo flange with 6 mm shaft, measuring range 0 m ... 1.25 m  | MRA-G055-101D4     | 5324019  |
| <b>Flanges</b>  |   |                    |          |
|  | Flange adapter for EcoLine wire draw mechanisms, adaption of face mount flange with centering hub 20 mm to 50 mm servo flange, Aluminum, including 3 countersunk screws M3 x 10   | BEF-FA-020-050-007 | 2073774  |
| <b>Plug connectors and cables</b>   |   |                    |          |
|  | <ul style="list-style-type: none"> <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>Cable:</b> 8-wire, PUR, halogen-free</li> <li><b>Description:</b> SSI, Incremental, HIPERFACE®, shielded</li> </ul>   | LTG-2308-MWENC     | 6027529  |
|  | <ul style="list-style-type: none"> <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>Cable:</b> 12-wire, UV and saltwater-resistant, PUR, halogen-free</li> <li><b>Description:</b> SSI, TTL, HTL, Incremental, shielded, Head A: cable Head B: cable Cable: suitable for drag chain, PUR, halogen-free, shielded, UV and saltwater resistant, 4 x 2 x 0.25 mm<sup>2</sup> + 2 x 0.5 mm<sup>2</sup> + 2 x 0.14 mm<sup>2</sup>, Ø 7.8 mm</li> </ul> | LTG-2612-MW        | 6028516  |
|  | <ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 8-pin, straight</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Incremental, SSI</li> <li><b>Cable:</b> 2 m, 8-wire, PUR, halogen-free</li> <li><b>Description:</b> Incremental, SSI, shielded, Head A: female connector, M12, 8-pin, straight Head B: cable Cable: suitable for drag chain, PVC, shielded, 4 x 2 x 0.25 mm<sup>2</sup>, Ø 7.0 mm</li> <li><b>Connection systems:</b> Flying leads</li> </ul>                              | DOL-1208-G02MAC1   | 6032866  |

|   | Brief description  | Type             | Part no. |
|---|--|------------------|----------|
|   | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 8-pin, straight</li> <li>• <b>Connection type head B:</b> Flying leads</li> <li>• <b>Signal type:</b> Incremental, SSI</li> <li>• <b>Cable:</b> 5 m, 8-wire, PUR, halogen-free</li> <li>• <b>Description:</b> Incremental, SSI, shielded, Head A: female connector, M12, 8-pin, straight Head B: cable Cable: suitable for drag chain, PVC, shielded, 4 x 2 x 0.25 mm<sup>2</sup>, Ø 7.0 mm</li> <li>• <b>Connection systems:</b> Flying leads</li> </ul>   | DOL-1208-G05MAC1 | 6032867  |
|   | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 8-pin, straight</li> <li>• <b>Connection type head B:</b> Flying leads</li> <li>• <b>Signal type:</b> Incremental, SSI</li> <li>• <b>Cable:</b> 10 m, 8-wire, PUR, halogen-free</li> <li>• <b>Description:</b> Incremental, SSI, shielded, Head A: female connector, M12, 8-pin, straight Head B: cable Cable: suitable for drag chain, PVC, shielded, 4 x 2 x 0.25 mm<sup>2</sup>, Ø 7.0 mm</li> <li>• <b>Connection systems:</b> Flying leads</li> </ul>  | DOL-1208-G10MAC1 | 6032868  |
|   | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 8-pin, straight</li> <li>• <b>Connection type head B:</b> Flying leads</li> <li>• <b>Signal type:</b> Incremental, SSI</li> <li>• <b>Cable:</b> 20 m, 8-wire, PUR, halogen-free</li> <li>• <b>Description:</b> Incremental, SSI, shielded, Head A: female connector, M12, 8-pin, straight Head B: cable Cable: suitable for drag chain, PVC, shielded, 4 x 2 x 0.25 mm<sup>2</sup>, Ø 7.0 mm</li> <li>• <b>Connection systems:</b> Flying leads</li> </ul>  | DOL-1208-G20MAC1 | 6032869  |
|   | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 8-pin, straight</li> <li>• <b>Connection type head B:</b> Flying leads</li> <li>• <b>Signal type:</b> Incremental, SSI</li> <li>• <b>Cable:</b> 25 m, 8-wire, PUR, halogen-free</li> <li>• <b>Description:</b> Incremental, SSI, shielded, Head A: female connector, M12, 8-pin, straight Head B: cable Cable: suitable for drag chain, PVC, shielded, 4 x 2 x 0.25 mm<sup>2</sup>, Ø 7.0 mm</li> <li>• <b>Connection systems:</b> Flying leads</li> </ul>  | DOL-1208-G25MAC1 | 6067859  |
|  | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 8-pin, straight</li> <li>• <b>Connection type head B:</b> Male connector, D-Sub, 9-pin, straight</li> <li>• <b>Signal type:</b> SSI</li> <li>• <b>Cable:</b> 0.5 m, 8-wire, PUR, halogen-free</li> <li>• <b>Description:</b> SSI, shielded, Programming cable for PGT-08-S and PGT-10-S programming tool</li> <li>• <b>Note:</b> Suitable for use with SSI interfaces, not suitable for use with SSI + Incremental interface or SSI + Sin/Cos., programming adapter cable for programming tool PGT-10-Pro and PGT-08-S</li> </ul> | DSL-2D08-G0M5AC2 | 2048439  |
|  | <ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 8-pin, straight, A-coded</li> <li>• <b>Signal type:</b> Incremental, SSI</li> <li>• <b>Cable:</b> CAT5, CAT5e</li> <li>• <b>Description:</b> Incremental, SSI, shielded, Head A: female connector, M12, 8-pin, straight, A encoded, shielded, for cable diameter 4 mm ... 8 mm Head B: - Operating temperature: -40 °C ... +85 °C</li> <li>• <b>Connection systems:</b> IDC quick connection</li> <li>• <b>Permitted cross-section:</b> 0.14 mm<sup>2</sup> ... 0.34 mm<sup>2</sup></li> </ul>                                    | DOS-1208-GA01    | 6045001  |

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