



# Online Data Sheet

## 인크리멘탈 마그네틱 로터리 엔코더 - Ø 30mm

### WDG 30A 시리즈

#### Wachendorff Automation

#### ... systems and encoders

- Complete systems
- Industrial rugged encoders to suit your application
- Standard range and customer versions
- Maximum permissible loads
- 48-hour express production
- Made in Germany
- Worldwide distributor network

## Encoder WDG 30A

[www.wachendorff-automation.com/wdg30a](http://www.wachendorff-automation.com/wdg30a)

**IndustrieROBUST**

# Encoder WDG 30A



1. 초소형, 초경량 로터리 엔코더
2. 1~1024PPR 지원
3. 최대 IP67 보호 등급
4. Hall 방식으로 고정밀 측정 가능
5. CE 인증 및 UL인증 제품

[www.wachendorff-automation.com/wdg30a](http://www.wachendorff-automation.com/wdg30a)

| Resolution                     |                                                 |
|--------------------------------|-------------------------------------------------|
| Max. pulses per revolution PPR | 1 PPR up to 128 PPR, 256 PPR, 512 PPR, 1024 PPR |

| Mechanical Data |                |
|-----------------|----------------|
| Housing         |                |
| Flange          | synchro flange |
| Flange material | aluminum       |
| Housing cap     | aluminum       |
| Housing         | Ø 30 mm        |

| Shaft(s)        |                                        |
|-----------------|----------------------------------------|
| Shaft material  | stainless steel                        |
| Starting torque | approx. 0.2 Ncm at ambient temperature |

|                                       |          |
|---------------------------------------|----------|
| Shaft                                 | Ø 6 mm   |
| Shaft length                          | L: 12 mm |
| Max. Permissible shaft loading radial | 80 N     |
| Max. Permissible shaft loading axial  | 50 N     |

| Bearings             |                                                                                                                                                                          |
|----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Bearings type        | 2 precision ball bearings                                                                                                                                                |
| Nominal service life | 0.55 x 10 <sup>9</sup> revs. at 100 % rated shaft load<br>8.5 x 10 <sup>10</sup> revs. at 40 % rated shaft load<br>6.8 x 10 <sup>11</sup> revs. at 20 % rated shaft load |
| Max. operating speed | 12000 rpm                                                                                                                                                                |

| Machinery Directive: basic data safety integrity level |                                                                     |
|--------------------------------------------------------|---------------------------------------------------------------------|
| MTTF <sub>d</sub>                                      | 200 a                                                               |
| Mission time (TM)                                      | 25 a                                                                |
| Nominal service life (L10h)                            | 6.8 x 10 <sup>11</sup> revs. at 20 % rated shaft load and 12000 rpm |
| Diagnostic coverage (DC)                               | 0 %                                                                 |

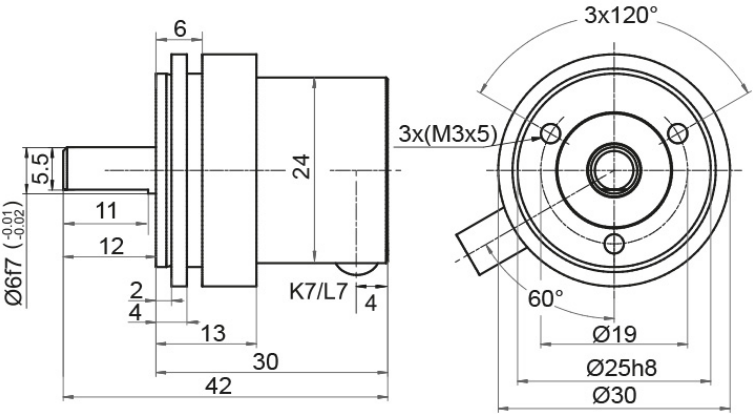
| Electrical Data                  |                                                        |
|----------------------------------|--------------------------------------------------------|
| Power supply/Current consumption | 4,75 VDC up to 5,5 VDC: typ. 40 mA                     |
| Power supply/Current consumption | 5 VDC up to 30 VDC: typ. 40 mA                         |
| Output circuit                   | TTL, RS422 compatible, inv.<br>TTL<br>HTL<br>HTL, inv. |

|                    |                                                   |
|--------------------|---------------------------------------------------|
| Pulse frequency    | ≤ 64 ppr: max. 20 kHz<br>≤ 1024 ppr: max. 200 kHz |
| Channels           | AB<br>ABN<br>and inverted signals                 |
| Load               | max. 30 mA / channel                              |
| Circuit protection | no                                                |

| Accuracy           |                                                                                                                                                                  |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Phase offset       | at 1 ppr up to 256 ppr: 90° ± max. 10% of the pulse length<br>at 512 ppr: 90° ± max. 20% of the pulse length<br>at 1024 ppr: 90° ± max. 23 % of the pulse length |
| pulse-/pause-ratio | at 1 ppr up to 128 ppr: 50 % ± max. 10 %<br>at 256 ppr, 512 ppr, 1024 ppr: 50 % ± max. 20 %                                                                      |

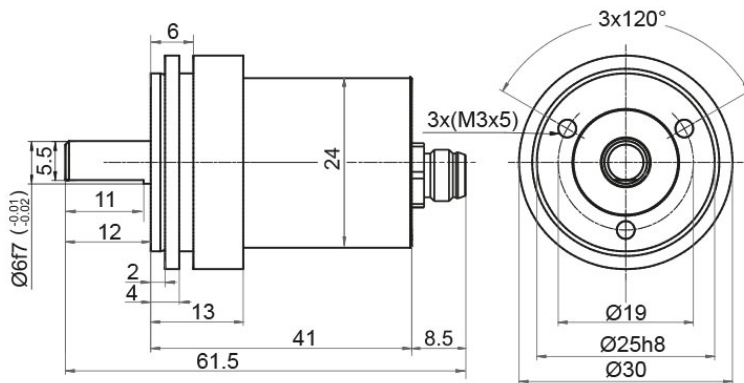
| General Data                 |                                                    |
|------------------------------|----------------------------------------------------|
| Weight                       | approx. 50 g                                       |
| Connections                  | cable or connector outlet                          |
| Protection rating (EN 60529) | IP65 all around with SK6, housing IP40 with K7, L7 |
| Operating temperature        | -20 °C up to +80 °C                                |
| Storage temperature          | -20 °C up to +80 °C                                |

| More Information                                                                                                                                    |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|--|
| General technical data and safety instructions<br><a href="http://www.wachendorff-automation.com/gtd">http://www.wachendorff-automation.com/gtd</a> |  |
| Options<br><a href="http://www.wachendorff-automation.com/acc">http://www.wachendorff-automation.com/acc</a>                                        |  |

**Cable connection K7, L7 (IP40) with 2 m cable**

| Description |                                                    | ABN inv. poss. |
|-------------|----------------------------------------------------|----------------|
| K7          | radial, shield not connected (IP40)                | •              |
| L7          | radial, shield connected to encoder housing (IP40) | •              |

| Assignments           |          |                 |
|-----------------------|----------|-----------------|
|                       | K7, L7   | K7, L7          |
| Circuit               | N05, N30 | M05, M30        |
| GND                   | WH       | WH              |
| (+) Vcc               | BN       | BN              |
| A                     | GN       | GN              |
| B                     | YE       | YE              |
| N                     | GY       | GY              |
| Light reserve warning | -        | -               |
| A inv.                | -        | RD              |
| B inv.                | -        | PK, (BK at ACA) |
| N inv.                | -        | BU, (VT at ACA) |
| Shield                | flex     | flex            |

**Connector SK6, 6-pin**

**Description**
**ABN inv. poss.**
**SK6** axial, 6-pin, Connector connected to encoder housing

-

| Assignments                  |              |
|------------------------------|--------------|
|                              | <b>SK6</b>   |
|                              | <b>6-pin</b> |
|                              |              |
| <b>Circuit</b>               | N05, N30     |
| <b>GND</b>                   | 3            |
| <b>(+) Vcc</b>               | 2            |
| <b>A</b>                     | 4            |
| <b>B</b>                     | 5            |
| <b>N</b>                     | 1            |
| <b>Light reserve warning</b> | -            |
| <b>A inv.</b>                | -            |
| <b>B inv.</b>                | -            |
| <b>N inv.</b>                | -            |
| <b>n. c.</b>                 | 6            |
| <b>Shield</b>                | -            |

## Options

### Low-friction bearings

The encoder WDG 30A is also available as a particularly smooth-running low-friction encoder. The starting torque is thereby changed to  $\leq 0.1$  Ncm and the protection class at the shaft input to IP50.

### Order key

**AAC**

### IP67 all around (with connector SK6 only)

The encoder WDG 30A with SK6 can be supplied in a full IP67 version.

Max. RPM: 3500 rpm

Permitted Shaft-Loading, axial: 30 N

Permitted Shaft-Loading, radial: 45 N

Max. PPR: 1024 ppr

Starting-torque: approx. 1.2 Ncm at ambient temperature

### Order key

**AAO**

### Low temperature

The encoder WDG 30A with the output circuit types M05, N05, M30, N30 is also available with the extended temperature range -40 °C up to +80 °C (measured at the flange).

### Order key

**ACA**

### Cable length

The encoder WDG 30A can be supplied with more than 2 m cable. The maximum cable length depends on the supply voltage and the frequency; see [www.wachendorff-automation.com/atd](http://www.wachendorff-automation.com/atd)

Please extend the standard order code with a three figure number, specifying the cable length in decimetres.

Example: 5 m cable = 050

### Order key

**XXX = Decimeter**

| Example Order No. | Type                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                  |                            |                       |           | Your encoder |  |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|----------------------------|-----------------------|-----------|--------------|--|
| WDG 30A           | WDG 30A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                  |                            |                       |           | WDG 30A      |  |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                  |                            |                       |           |              |  |
|                   | Pulses per revolution PPR:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                  |                            |                       |           |              |  |
| 64                | 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 256, 512, 1024<br>Other PPRs on request |                  |                            |                       |           |              |  |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                  |                            |                       |           |              |  |
|                   | Channels:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                  |                            |                       |           |              |  |
| ABN               | AB, ABN                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                  |                            |                       |           |              |  |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                  |                            |                       |           |              |  |
|                   | Output circuit                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                  |                            |                       |           |              |  |
| M30               | Resolution PPR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Power supply VDC | Output circuit             | Light reserve warning | Order key |              |  |
|                   | 16, 32, 64                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 4.75 - 5.5       | TTL, RS422 comp., inverted | -                     | M05       |              |  |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 4.75 - 5.5       | TTL                        | -                     | N05       |              |  |
|                   | 1-128, 256, 512, 1024                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 5 - 30           | HTL inverted               | -                     | M30       |              |  |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 5 - 30           | HTL                        | -                     | N30       |              |  |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                  |                            |                       |           |              |  |
|                   | Electrical connections                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                  |                            |                       |           |              |  |
| K7                | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                  |                            | ABN inv. poss.        | Order key |              |  |
|                   | Cable: length (2 m standard, WDG 58T: 1 m)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                  |                            |                       |           |              |  |
|                   | radial, shield not connected (IP40)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                  |                            | •                     | K7        |              |  |
|                   | radial, shield connected to encoder housing (IP40)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                  |                            | •                     | L7        |              |  |
|                   | Connector: (shield connected to encoder housing)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                  |                            |                       |           |              |  |
|                   | connector, M8x1, 6-pin, axial                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                  |                            | -                     | SK6       |              |  |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                  |                            |                       |           |              |  |
|                   | Options                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                  |                            |                       |           |              |  |
|                   | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                  |                            | Order key             |           |              |  |
|                   | Low-friction bearings                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                  |                            | AAC                   |           |              |  |
|                   | IP67 all around (with connector SK6 only)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                  |                            | AAO                   |           |              |  |
|                   | Low temperature                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                  |                            | ACA                   |           |              |  |
|                   | Without option                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                  |                            | Empty                 |           |              |  |
|                   | Cable length                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                  |                            | XXX = Decimeter       |           |              |  |

|                    |         |    |     |     |    |  |         |  |  |  |  |  |              |
|--------------------|---------|----|-----|-----|----|--|---------|--|--|--|--|--|--------------|
| Example Order No.= | WDG 30A | 64 | ABN | M30 | K7 |  | WDG 30A |  |  |  |  |  | Your encoder |
|--------------------|---------|----|-----|-----|----|--|---------|--|--|--|--|--|--------------|



For further information please contact our local distributor.  
Here you find a list of our distributors worldwide.  
[http://www.wachendorff-automation.com/distributors\\_worldwide.html](http://www.wachendorff-automation.com/distributors_worldwide.html)

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