



# Online Data Sheet

**인크리멘탈 옵티컬 로터리 엔코더 - Ø115mm**

**WDG 115T 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 WDGI 115T**

[www.wachendorff-automation.com/wdgi115t](http://www.wachendorff-automation.com/wdgi115t)

**Industrie ROBUST**

# Encoder WDGI 115T



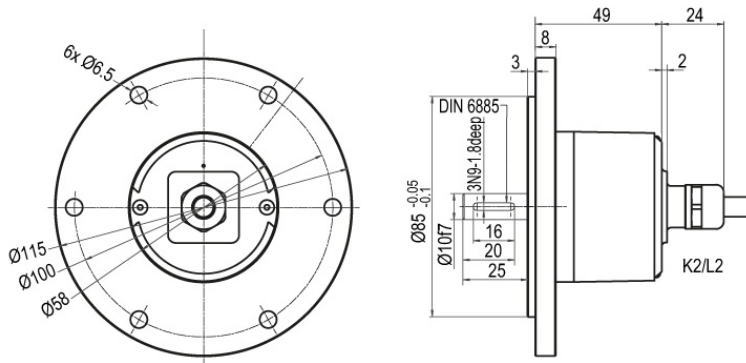
1. 타코(Tacho)플랜지 - 타코 제네레이터  
- Digital Tacho generator
2. IP67 보호 등급의 방수/방진 로터리 엔코더  
- Shaft Sealing - IP65
3. 고출력 주파수  
- 600kHz/2MHz
4. 옵티컬(Optical) 방식으로 고정밀, 고분해능  
- MAX 25000PPR
5. UL 및 CE 인증 제품

| Resolution                                             |                                                                                                                                                                   |
|--------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Max. pulses per revolution PPR                         | up to 25000 PPR                                                                                                                                                   |
| Mechanical Data                                        |                                                                                                                                                                   |
| Housing                                                |                                                                                                                                                                   |
| Flange                                                 | tacho flange                                                                                                                                                      |
| Flange material                                        | aluminum                                                                                                                                                          |
| Housing cap                                            | die cast aluminum, powder coated                                                                                                                                  |
| Housing                                                | Ø 115 mm                                                                                                                                                          |
| Shaft(s)                                               |                                                                                                                                                                   |
| Shaft material                                         | stainless steel                                                                                                                                                   |
| Starting torque                                        | approx. 1 Ncm at ambient temperature                                                                                                                              |
| Shaft                                                  | Ø 10 mm                                                                                                                                                           |
| Shaft length                                           | L: 25 mm                                                                                                                                                          |
| Max. Permissible shaft loading radial                  | 200 N                                                                                                                                                             |
| Max. Permissible shaft loading axial                   | 120 N                                                                                                                                                             |
| Advice                                                 | Ø 7 mm / Ø 8 mm on request                                                                                                                                        |
| Bearings                                               |                                                                                                                                                                   |
| Bearings type                                          | 2 precision ball bearings                                                                                                                                         |
| Nomiale service life                                   | 1 x 10 <sup>9</sup> revs. at 100 % rated shaft load<br>1 x 10 <sup>10</sup> revs. at 40 % rated shaft load<br>1 x 10 <sup>11</sup> revs. at 20 % rated shaft load |
| Max. operating speed                                   | 8000 rpm                                                                                                                                                          |
| Machinery Directive: basic data safety integrity level |                                                                                                                                                                   |
| MTTF <sub>d</sub>                                      | 200 a                                                                                                                                                             |
| Mission time (TM)                                      | 25 a                                                                                                                                                              |
| Nomiale service life (L10h)                            | 1 x 10 <sup>11</sup> revs. at 20 % rated shaft load and 8000 rpm                                                                                                  |
| Diagnostic coverage (DC)                               | 0 %                                                                                                                                                               |
| Electrical Data                                        |                                                                                                                                                                   |
| Power supply/Current consumption                       | 4,75 VDC up to 5,5 VDC: typ. 100 mA                                                                                                                               |
| Power supply/Current consumption                       | 5 VDC up to 30 VDC: typ. 70 mA                                                                                                                                    |
| Power supply/Current consumption                       | 10 VDC up to 30 VDC: typ. 100 mA                                                                                                                                  |

| Output circuit     | TTL<br>TTL, RS422 compatible, inv.<br>HTL<br>HTL, inv.<br>1 Vpp sin/cos                                                                                                   |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Pulse frequency    | TTL ≤ 5000 ppr: max. 200 kHz<br>HTL ≤ 5000 ppr: max. 200 kHz<br>TTL more than 1200 ppr: max. 2 MHz<br>HTL more than 1200 ppr: max. 600 kHz<br>1 Vpp sin/cos: max. 100 kHz |
| Channels           | AB<br>ABN<br>and inverted signals                                                                                                                                         |
| Load               | max. 40 mA / channel<br>@ 1 Vpp sin/cos: min. 120 Ohm                                                                                                                     |
| Circuit protection | circuit type F24, G24, H24, I24, P24, R24 only                                                                                                                            |
| Accuracy           |                                                                                                                                                                           |
| Phase offset       | 90° ± max. 7.5 % of the pulse length                                                                                                                                      |
| pulse-/pause-ratio | ≤5000 ppr: 50 % ± max. 7 %<br>Output circuits F24, P24, F05, P05, 645: 50 % ± max. 10 %                                                                                   |

| General Data                 |                                                                                                                                   |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|
| Weight                       | approx. 520 g                                                                                                                     |
| Connections                  | cable or connector outlet                                                                                                         |
| Protection rating (EN 60529) | IP67, shaft sealed to IP65                                                                                                        |
| Operating temperature        | Connector: -20 °C up to +85 °C,<br>cable: -20 °C up to +80 °C, (Option<br>ACA: -40 °C up to +85 °C)<br>1 Vpp: -10 °C up to +70 °C |
| Storage temperature          | Connector: -30 °C up to +85 °C,<br>cable: -30 °C up to +80 °C, option<br>ACA: -40 °C up to +85 °C                                 |

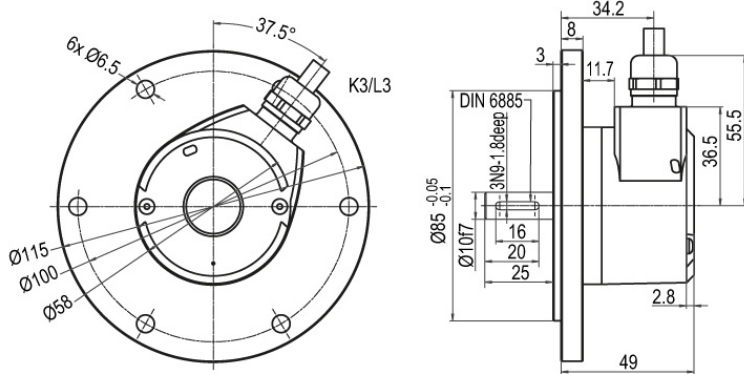
| More Information                                                                                                                                    |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|--|
| 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>                                        |  |

**WDGI 115T: Cable connection K2, L2, axial, with 2 m cable**

**Description**
**ABN inv. poss.**

|           |                                            |   |
|-----------|--------------------------------------------|---|
| <b>K2</b> | axial, shield not connected                | • |
| <b>L2</b> | axial, shield connected to encoder housing | • |

| Assignments                  |          |                         |                 |                                   |      |
|------------------------------|----------|-------------------------|-----------------|-----------------------------------|------|
|                              | K2, L2   | K2, L2                  | K2, L2          | K2, L2                            | L2   |
| <b>Circuit</b>               | G05, G24 | F05, H05, F24, H24, H30 | I05, I24, 524   | P05, R05, P24, R24, 245, 645, R30 | SIN  |
| <b>GND</b>                   | WH       | WH                      | WH              | WH                                | WH   |
| <b>(+) Vcc</b>               | BN       | BN                      | BN              | BN                                | BN   |
| <b>A</b>                     | GN       | GN                      | GN              | GN                                | GN   |
| <b>B</b>                     | YE       | YE                      | YE              | YE                                | GY   |
| <b>N</b>                     | GY       | GY                      | GY              | GY                                | -    |
| <b>Light reserve warning</b> | PK       | -                       | PK              | -                                 | -    |
| <b>A inv.</b>                | -        | -                       | RD              | RD                                | YE   |
| <b>B inv.</b>                | -        | -                       | BK, (BU at ACA) | BK, (BU at ACA)                   | PK   |
| <b>N inv.</b>                | -        | -                       | VT              | VT                                | -    |
| <b>Shield</b>                | flex     | flex                    | flex            | flex                              | flex |

**WDGI 115T: Cable connection K3, L3, radial, with 2 m cable**



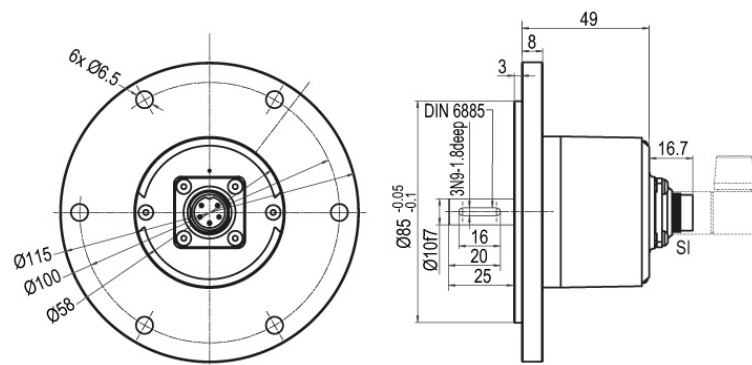
**Description**

**ABN inv. poss.**

|           |                                             |   |
|-----------|---------------------------------------------|---|
| <b>K3</b> | radial, shield not connected                | • |
| <b>L3</b> | radial, shield connected to encoder housing | • |

| Assignments                  |               |                         |                 |                                   |           |
|------------------------------|---------------|-------------------------|-----------------|-----------------------------------|-----------|
|                              | <b>K3, L3</b> | <b>K3, L3</b>           | <b>K3, L3</b>   | <b>K3, L3</b>                     | <b>L3</b> |
| <b>Circuit</b>               | G05, G24      | F05, H05, F24, H24, H30 | I05, I24, 524   | P05, R05, P24, R24, 245, 645, R30 | SIN       |
| <b>GND</b>                   | WH            | WH                      | WH              | WH                                | WH        |
| <b>(+) Vcc</b>               | BN            | BN                      | BN              | BN                                | BN        |
| <b>A</b>                     | GN            | GN                      | GN              | GN                                | GN        |
| <b>B</b>                     | YE            | YE                      | YE              | YE                                | GY        |
| <b>N</b>                     | GY            | GY                      | GY              | GY                                | -         |
| <b>Light reserve warning</b> | PK            | -                       | PK              | -                                 | -         |
| <b>A inv.</b>                | -             | -                       | RD              | RD                                | YE        |
| <b>B inv.</b>                | -             | -                       | BK, (BU at ACA) | BK, (BU at ACA)                   | PK        |
| <b>N inv.</b>                | -             | -                       | VT              | VT                                | -         |
| <b>Shield</b>                | flex          | flex                    | flex            | flex                              | flex      |

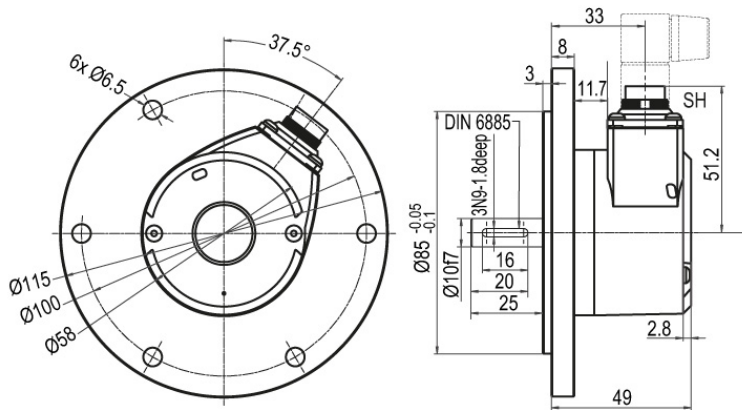
**WDGI 115T: Connector (M16x0.75) SI, axial, 5-, 6-, 8-, 12-pin**



| Description                                                       | ABN inv. poss. |
|-------------------------------------------------------------------|----------------|
| <b>SI5</b> axial, 5-pin, Connector connected to encoder housing   | -              |
| <b>SI6</b> axial, 6-pin, Connector connected to encoder housing   | -              |
| <b>SI8</b> axial, 8-pin, Connector connected to encoder housing   | •              |
| <b>SI12</b> axial, 12-pin, Connector connected to encoder housing | •              |

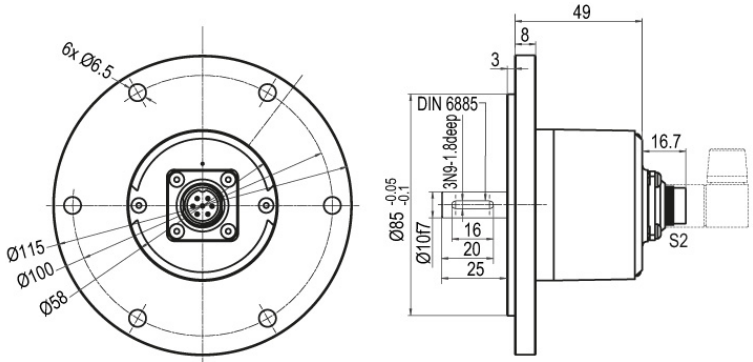
| Assignments           |                         |          |                         |                         |                                   |       |            |                         |               |                                   |         |
|-----------------------|-------------------------|----------|-------------------------|-------------------------|-----------------------------------|-------|------------|-------------------------|---------------|-----------------------------------|---------|
|                       | SI5                     | SI6      | SI6                     | SI8                     | SI8                               | SI8   | SI12       | SI12                    | SI12          | SI12                              | SI12    |
|                       | 5-pin                   | 6-pin    | 6-pin                   | 8-pin                   | 8-pin                             | 8-pin | 12-pin     | 12-pin                  | 12-pin        | 12-pin                            | 12-pin  |
|                       |                         |          |                         |                         |                                   |       |            |                         |               |                                   |         |
| Circuit               | F05, H05, F24, H24, H30 | G05, G24 | F05, H05, F24, H24, H30 | F05, H05, F24, H24, H30 | P05, R05, P24, R24, R30, 245, 645 | SIN   | G05, G24   | F05, H05, F24, H24, H30 | I05, I24, 524 | P05, R05, P24, R24, 245, 645, R30 | SIN     |
| GND                   | 1                       | 6        | 6                       | 1                       | 1                                 | 1     | K, L       | K, L                    | K, L          | K, L                              | K, L    |
| (+) Vcc               | 2                       | 1        | 1                       | 2                       | 2                                 | 2     | M, B       | M, B                    | M, B          | M, B                              | M, B    |
| A                     | 3                       | 2        | 2                       | 3                       | 3                                 | 3     | E          | E                       | E             | E                                 | E       |
| B                     | 4                       | 4        | 4                       | 4                       | 4                                 | 4     | H          | H                       | H             | H                                 | H       |
| N                     | 5                       | 3        | 3                       | 5                       | 5                                 | -     | C          | C                       | C             | C                                 | -       |
| Light reserve warning | -                       | 5        | -                       | -                       | -                                 | -     | G          | -                       | G             | -                                 | -       |
| A inv.                | -                       | -        | -                       | -                       | 6                                 | 6     | -          | -                       | F             | F                                 | F       |
| B inv.                | -                       | -        | -                       | -                       | 7                                 | 7     | -          | -                       | A             | A                                 | A       |
| N inv.                | -                       | -        | -                       | -                       | 8                                 | -     | -          | -                       | D             | D                                 | -       |
| n. c.                 | -                       | -        | 5                       | 6, 7, 8                 | -                                 | 5, 8  | A, D, F, J | A, D, F, G, J           | J             | G, J                              | D, G, J |
| Shield                | -                       | -        | -                       | -                       | -                                 | -     | -          | -                       | -             | -                                 | -       |

**WDGI 115T: Connector (M16x0.75) SH, radial, 5-, 6-, 8-, 12-pin**



| Description                                                        | ABN inv. poss. |
|--------------------------------------------------------------------|----------------|
| <b>SH5</b> radial, 5-pin, Connector connected to encoder housing   | -              |
| <b>SH6</b> radial, 6-pin, Connector connected to encoder housing   | -              |
| <b>SH8</b> radial, 8-pin, Connector connected to encoder housing   | •              |
| <b>SH12</b> radial, 12-pin, Connector connected to encoder housing | •              |

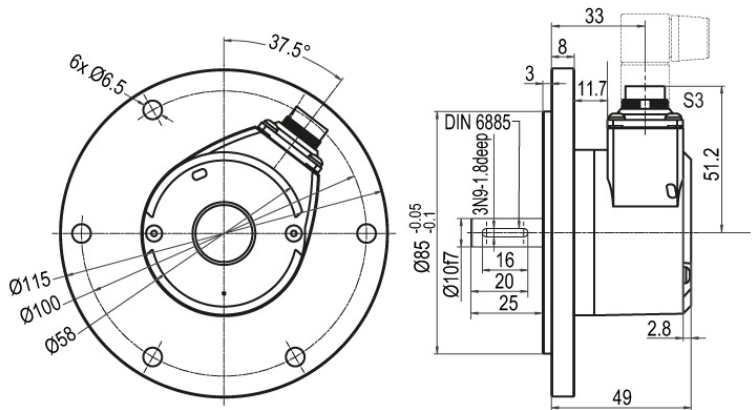
| Assignments                  |                         |          |                         |                         |                                   |       |            |                         |               |                                   |         |
|------------------------------|-------------------------|----------|-------------------------|-------------------------|-----------------------------------|-------|------------|-------------------------|---------------|-----------------------------------|---------|
|                              | SH5                     | SH6      | SH6                     | SH8                     | SH8                               | SH8   | SH12       | SH12                    | SH12          | SH12                              | SH12    |
|                              | 5-pin                   | 6-pin    | 6-pin                   | 8-pin                   | 8-pin                             | 8-pin | 12-pin     | 12-pin                  | 12-pin        | 12-pin                            | 12-pin  |
|                              |                         |          |                         |                         |                                   |       |            |                         |               |                                   |         |
| <b>Circuit</b>               | F05, H05, F24, H24, H30 | G05, G24 | F05, H05, F24, H24, H30 | F05, H05, F24, H24, H30 | P05, R05, P24, R24, R30, 245, 645 | SIN   | G05, G24   | F05, H05, F24, H24, H30 | I05, I24, 524 | P05, R05, P24, R24, 245, 645, R30 | SIN     |
| <b>GND</b>                   | 1                       | 6        | 6                       | 1                       | 1                                 | 1     | K, L       | K, L                    | K, L          | K, L                              | K, L    |
| <b>(+) Vcc</b>               | 2                       | 1        | 1                       | 2                       | 2                                 | 2     | M, B       | M, B                    | M, B          | M, B                              | M, B    |
| <b>A</b>                     | 3                       | 2        | 2                       | 3                       | 3                                 | 3     | E          | E                       | E             | E                                 | E       |
| <b>B</b>                     | 4                       | 4        | 4                       | 4                       | 4                                 | 4     | H          | H                       | H             | H                                 | H       |
| <b>N</b>                     | 5                       | 3        | 3                       | 5                       | 5                                 | -     | C          | C                       | C             | C                                 | -       |
| <b>Light reserve warning</b> | -                       | 5        | -                       | -                       | -                                 | -     | G          | -                       | G             | -                                 | -       |
| <b>A inv.</b>                | -                       | -        | -                       | -                       | 6                                 | 6     | -          | -                       | F             | F                                 | F       |
| <b>B inv.</b>                | -                       | -        | -                       | -                       | 7                                 | 7     | -          | -                       | A             | A                                 | A       |
| <b>N inv.</b>                | -                       | -        | -                       | -                       | 8                                 | -     | -          | -                       | D             | D                                 | -       |
| <b>n. c.</b>                 | -                       | -        | 5                       | 6, 7, 8                 | -                                 | 5, 8  | A, D, F, J | A, D, F, G, J           | J             | G, J                              | D, G, J |
| <b>Shield</b>                | -                       | -        | -                       | -                       | -                                 | -     | -          | -                       | -             | -                                 | -       |

**WDGI 115T: Connector (M16x0.75) S2, axial, 7-pin**

| Description                                             | ABN inv. poss. |
|---------------------------------------------------------|----------------|
| S2 axial, 7-pin, Connector connected to encoder housing | -              |

| Assignments           |             |                         |
|-----------------------|-------------|-------------------------|
|                       | S2<br>7-pin | S2<br>7-pin             |
|                       |             |                         |
| Circuit               | G05, G24    | F05, H05, F24, H24, H30 |
| GND                   | 1           | 1                       |
| (+) Vcc               | 2           | 2                       |
| A                     | 3           | 3                       |
| B                     | 4           | 4                       |
| N                     | 5           | 5                       |
| Light reserve warning | 6           | -                       |
| A inv.                | -           | -                       |
| B inv.                | -           | -                       |
| N inv.                | -           | -                       |
| n. c.                 | 7           | 6, 7                    |
| Shield                | -           | -                       |

**WDGI 115T: Connector (M16x0.75) S3, radial, 7-pin**



**Description**

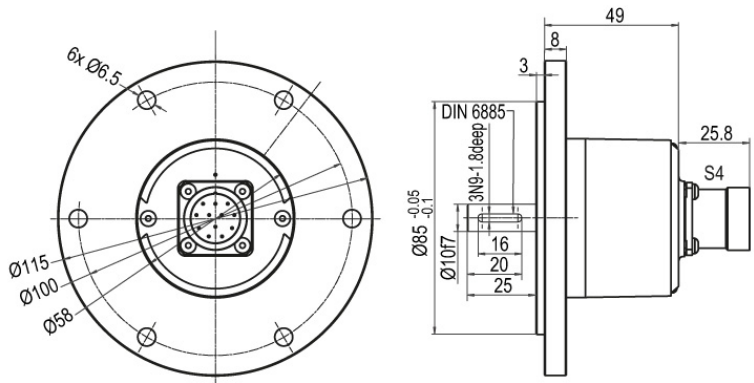
**ABN inv. poss.**

**S3** radial, 7-pin, Connector connected to encoder housing

-

| Assignments           |          |                         |
|-----------------------|----------|-------------------------|
|                       | S3       | S3                      |
|                       | 7-pin    | 7-pin                   |
|                       |          |                         |
| Circuit               | G05, G24 | F05, H05, F24, H24, H30 |
| GND                   | 1        | 1                       |
| (+) Vcc               | 2        | 2                       |
| A                     | 3        | 3                       |
| B                     | 4        | 4                       |
| N                     | 5        | 5                       |
| Light reserve warning | 6        | -                       |
| A inv.                | -        | -                       |
| B inv.                | -        | -                       |
| N inv.                | -        | -                       |
| n. c.                 | 7        | 6, 7                    |
| Shield                | -        | -                       |

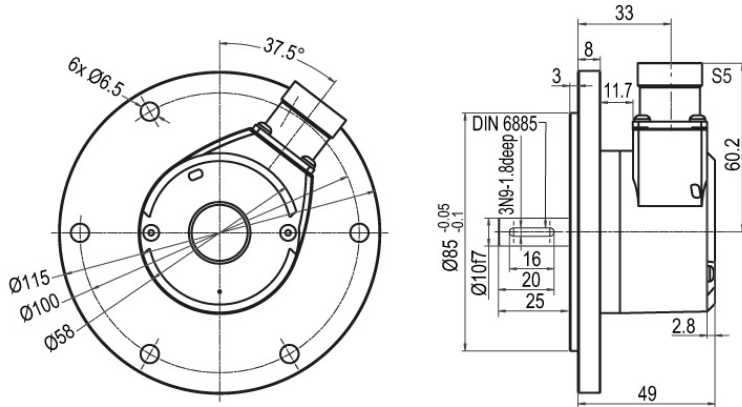
**WDGI 115T: Connector (M23) S4, axial, 12-pin**



| Description                                              | ABN inv. poss. |
|----------------------------------------------------------|----------------|
| S4 axial, 12-pin, Connector connected to encoder housing | •              |

| Assignments           |                  |                         |               |                                   |                   |
|-----------------------|------------------|-------------------------|---------------|-----------------------------------|-------------------|
|                       | S4               | S4                      | S4            | S4                                | S4                |
|                       | 12-pin           | 12-pin                  | 12-pin        | 12-pin                            | 12-pin            |
|                       |                  |                         |               |                                   |                   |
| Circuit               | G05, G24         | F05, H05, F24, H24, H30 | I05, I24, 524 | P05, R05, P24, R24, 245, 645, R30 | SIN               |
| GND                   | 10               | 10                      | 10            | 10                                | 10                |
| (+) Vcc               | 12               | 12                      | 12            | 12                                | 12                |
| A                     | 5                | 5                       | 5             | 5                                 | 5                 |
| B                     | 8                | 8                       | 8             | 8                                 | 8                 |
| N                     | 3                | 3                       | 3             | 3                                 | -                 |
| Light reserve warning | 11               | -                       | 11            | -                                 | -                 |
| A inv.                | -                | -                       | 6             | 6                                 | 6                 |
| B inv.                | -                | -                       | 1             | 1                                 | 1                 |
| N inv.                | -                | -                       | 4             | 4                                 | -                 |
| n. c.                 | 1, 2, 4, 6, 7, 9 | 1, 2, 4, 6, 7, 9, 11    | 2, 7, 9       | 2, 7, 9, 11                       | 2, 3, 4, 7, 9, 11 |
| Shield                | -                | -                       | -             | -                                 | -                 |

**WDGI 115T: Connector (M23) S5, radial, 12-pin**



**Description**

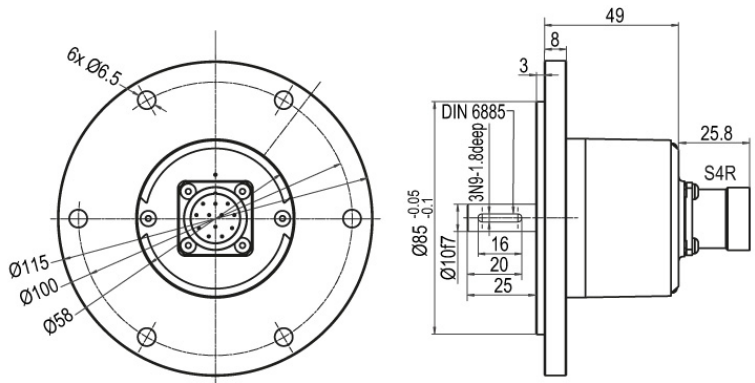
ABN inv. poss.

**S5** radial, 12-pin, Connector connected to encoder housing

•

| Assignments                  |                  |                         |               |                                   |                   |
|------------------------------|------------------|-------------------------|---------------|-----------------------------------|-------------------|
|                              | S5               | S5                      | S5            | S5                                | S5                |
|                              | 12-pin           | 12-pin                  | 12-pin        | 12-pin                            | 12-pin            |
|                              |                  |                         |               |                                   |                   |
| <b>Circuit</b>               | G05, G24         | F05, H05, F24, H24, H30 | I05, I24, 524 | P05, R05, P24, R24, 245, 645, R30 | SIN               |
| <b>GND</b>                   | 10               | 10                      | 10            | 10                                | 10                |
| <b>(+) Vcc</b>               | 12               | 12                      | 12            | 12                                | 12                |
| <b>A</b>                     | 5                | 5                       | 5             | 5                                 | 5                 |
| <b>B</b>                     | 8                | 8                       | 8             | 8                                 | 8                 |
| <b>N</b>                     | 3                | 3                       | 3             | 3                                 | -                 |
| <b>Light reserve warning</b> | 11               | -                       | 11            | -                                 | -                 |
| <b>A inv.</b>                | -                | -                       | 6             | 6                                 | 6                 |
| <b>B inv.</b>                | -                | -                       | 1             | 1                                 | 1                 |
| <b>N inv.</b>                | -                | -                       | 4             | 4                                 | -                 |
| <b>n. c.</b>                 | 1, 2, 4, 6, 7, 9 | 1, 2, 4, 6, 7, 9, 11    | 2, 7, 9       | 2, 7, 9, 11                       | 2, 3, 4, 7, 9, 11 |
| <b>Shield</b>                | -                | -                       | -             | -                                 | -                 |

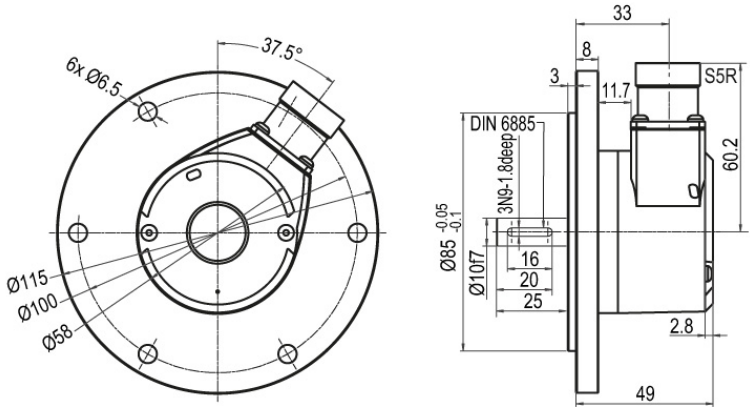
**WDGI 115T: Connector (M23) S4R, axial, 12-pin (clockwise)**



|                                                           |                |
|-----------------------------------------------------------|----------------|
| Description                                               | ABN inv. poss. |
| S4R axial, 12-pin, Connector connected to encoder housing | •              |

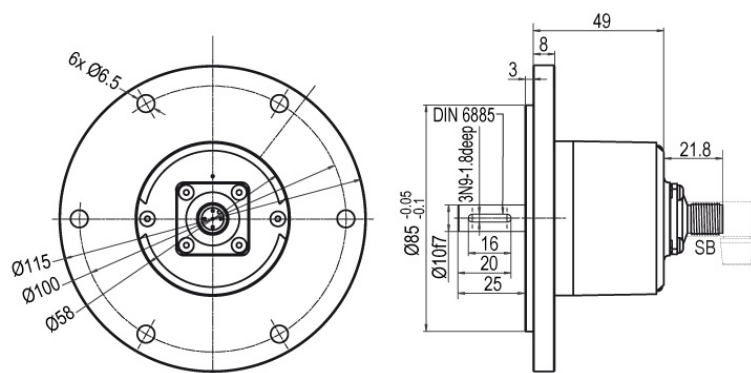
| Assignments           |                  |                         |               |                                   |                   |
|-----------------------|------------------|-------------------------|---------------|-----------------------------------|-------------------|
|                       | S4R              | S4R                     | S4R           | S4R                               | S4R               |
|                       | 12-pin           | 12-pin                  | 12-pin        | 12-pin                            | 12-pin            |
|                       |                  |                         |               |                                   |                   |
| Circuit               | G05, G24         | F05, H05, F24, H24, H30 | I05, I24, 524 | P05, R05, P24, R24, 245, 645, R30 | SIN               |
| GND                   | 10               | 10                      | 10            | 10                                | 10                |
| (+) Vcc               | 12               | 12                      | 12            | 12                                | 12                |
| A                     | 5                | 5                       | 5             | 5                                 | 5                 |
| B                     | 8                | 8                       | 8             | 8                                 | 8                 |
| N                     | 3                | 3                       | 3             | 3                                 | -                 |
| Light reserve warning | 11               | -                       | 11            | -                                 | -                 |
| A inv.                | -                | -                       | 6             | 6                                 | 6                 |
| B inv.                | -                | -                       | 1             | 1                                 | 1                 |
| N inv.                | -                | -                       | 4             | 4                                 | -                 |
| n. c.                 | 1, 2, 4, 6, 7, 9 | 1, 2, 4, 6, 7, 9, 11    | 2, 7, 9       | 2, 7, 9, 11                       | 2, 3, 4, 7, 9, 11 |
| Shield                | -                | -                       | -             | -                                 | -                 |

**WDGI 115T: Connector (M23) S5R, radial, 12-pin (clockwise)**



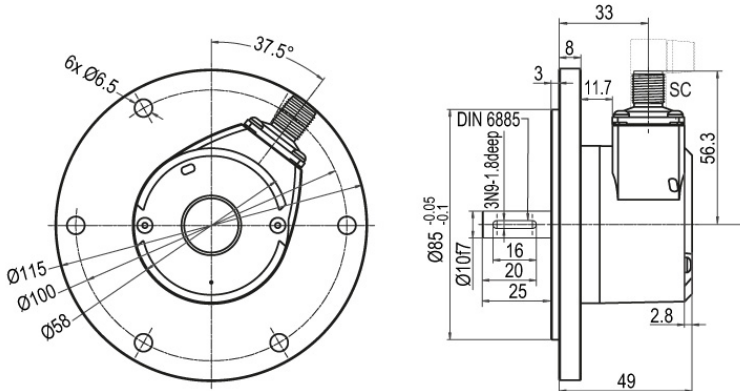
| Description                                                       | ABN inv. poss. |
|-------------------------------------------------------------------|----------------|
| <b>S5R</b> radial, 12-pin, Connector connected to encoder housing | •              |

| Assignments           |                  |                         |               |                                   |                   |
|-----------------------|------------------|-------------------------|---------------|-----------------------------------|-------------------|
|                       | S5R              | S5R                     | S5R           | S5R                               | S5R               |
|                       | 12-pin           | 12-pin                  | 12-pin        | 12-pin                            | 12-pin            |
|                       |                  |                         |               |                                   |                   |
| Circuit               | G05, G24         | F05, H05, F24, H24, H30 | I05, I24, 524 | P05, R05, P24, R24, 245, 645, R30 | SIN               |
| GND                   | 10               | 10                      | 10            | 10                                | 10                |
| (+) Vcc               | 12               | 12                      | 12            | 12                                | 12                |
| A                     | 5                | 5                       | 5             | 5                                 | 5                 |
| B                     | 8                | 8                       | 8             | 8                                 | 8                 |
| N                     | 3                | 3                       | 3             | 3                                 | -                 |
| Light reserve warning | 11               | -                       | 11            | -                                 | -                 |
| A inv.                | -                | -                       | 6             | 6                                 | 6                 |
| B inv.                | -                | -                       | 1             | 1                                 | 1                 |
| N inv.                | -                | -                       | 4             | 4                                 | -                 |
| n. c.                 | 1, 2, 4, 6, 7, 9 | 1, 2, 4, 6, 7, 9, 11    | 2, 7, 9       | 2, 7, 9, 11                       | 2, 3, 4, 7, 9, 11 |
| Shield                | -                | -                       | -             | -                                 | -                 |

**WDGI 115T: Sensor-connector (M12x1) SB, axial, 4-, 5-, 8-, 12-pin**

**Description**
**ABN inv. poss.**

|             |                                                       |   |
|-------------|-------------------------------------------------------|---|
| <b>SB4</b>  | axial, 4-pin, Connector connected to encoder housing  | - |
| <b>SB5</b>  | axial, 5-pin, Connector connected to encoder housing  | - |
| <b>SB8</b>  | axial, 8-pin, Connector connected to encoder housing  | • |
| <b>SB12</b> | axial, 12-pin, Connector connected to encoder housing | • |

| Assignments                  |                         |                         |                         |                                   |              |                     |                         |               |                                   |
|------------------------------|-------------------------|-------------------------|-------------------------|-----------------------------------|--------------|---------------------|-------------------------|---------------|-----------------------------------|
|                              | <b>SB4</b>              | <b>SB5</b>              | <b>SB8</b>              | <b>SB8</b>                        | <b>SB8</b>   | <b>SB12</b>         | <b>SB12</b>             | <b>SB12</b>   | <b>SB12</b>                       |
|                              | <b>4-pin</b>            | <b>5-pin</b>            | <b>8-pin</b>            | <b>8-pin</b>                      | <b>8-pin</b> | <b>12-pin</b>       | <b>12-pin</b>           | <b>12-pin</b> | <b>12-pin</b>                     |
|                              |                         |                         |                         |                                   |              |                     |                         |               |                                   |
| <b>Circuit</b>               | F05, H05, F24, H24, H30 | F05, H05, F24, H24, H30 | F05, H05, F24, H24, H30 | P05, R05, P24, R24, R30, 245, 645 | SIN          | G05, G24            | F05, H05, F24, H24, H30 | I05, I24, 524 | P05, R05, P24, R24, 245, 645, R30 |
| <b>GND</b>                   | 3                       | 3                       | 1                       | 1                                 | 1            | 3                   | 3                       | 3             | 3                                 |
| <b>(+) Vcc</b>               | 1                       | 1                       | 2                       | 2                                 | 2            | 1                   | 1                       | 1             | 1                                 |
| <b>A</b>                     | 2                       | 4                       | 3                       | 3                                 | 3            | 4                   | 4                       | 4             | 4                                 |
| <b>B</b>                     | 4                       | 2                       | 4                       | 4                                 | 5            | 6                   | 6                       | 6             | 6                                 |
| <b>N</b>                     | -                       | 5                       | 5                       | 5                                 | -            | 8                   | 8                       | 8             | 8                                 |
| <b>Light reserve warning</b> | -                       | -                       | -                       | -                                 | -            | 5                   | -                       | 5             | -                                 |
| <b>A inv.</b>                | -                       | -                       | -                       | 6                                 | 4            | -                   | -                       | 9             | 9                                 |
| <b>B inv.</b>                | -                       | -                       | -                       | 7                                 | 6            | -                   | -                       | 7             | 7                                 |
| <b>N inv.</b>                | -                       | -                       | -                       | 8                                 | -            | -                   | -                       | 10            | 10                                |
| <b>n. c.</b>                 | -                       | -                       | 6, 7, 8                 | -                                 | 7, 8         | 2, 7, 9, 10, 11, 12 | 2, 5, 7, 9, 10, 11, 12  | 2, 11, 12     | 2, 5, 11, 12                      |
| <b>Shield</b>                | -                       | -                       | -                       | -                                 | -            | -                   | -                       | -             | -                                 |

**WDGI 115T: Sensor-connector (M12x1) SC, radial, 4-, 5-, 8-, 12-pin**


| Description                                                        | ABN inv. poss. |
|--------------------------------------------------------------------|----------------|
| <b>SC4</b> radial, 4-pin, Connector connected to encoder housing   | -              |
| <b>SC5</b> radial, 5-pin, Connector connected to encoder housing   | -              |
| <b>SC8</b> radial, 8-pin, Connector connected to encoder housing   | •              |
| <b>SC12</b> radial, 12-pin, Connector connected to encoder housing | •              |

| Assignments           |                         |                         |                         |                                   |       |                     |                         |               |                                   |
|-----------------------|-------------------------|-------------------------|-------------------------|-----------------------------------|-------|---------------------|-------------------------|---------------|-----------------------------------|
|                       | SC4                     | SC5                     | SC8                     | SC8                               | SC8   | SC12                | SC12                    | SC12          | SC12                              |
|                       | 4-pin                   | 5-pin                   | 8-pin                   | 8-pin                             | 8-pin | 12-pin              | 12-pin                  | 12-pin        | 12-pin                            |
|                       |                         |                         |                         |                                   |       |                     |                         |               |                                   |
| Circuit               | F05, H05, F24, H24, H30 | F05, H05, F24, H24, H30 | F05, H05, F24, H24, H30 | P05, R05, P24, R24, R30, 245, 645 | SIN   | G05, G24            | F05, H05, F24, H24, H30 | I05, I24, 524 | P05, R05, P24, R24, 245, 645, R30 |
| GND                   | 3                       | 3                       | 1                       | 1                                 | 1     | 3                   | 3                       | 3             | 3                                 |
| (+) Vcc               | 1                       | 1                       | 2                       | 2                                 | 2     | 1                   | 1                       | 1             | 1                                 |
| A                     | 2                       | 4                       | 3                       | 3                                 | 3     | 4                   | 4                       | 4             | 4                                 |
| B                     | 4                       | 2                       | 4                       | 4                                 | 5     | 6                   | 6                       | 6             | 6                                 |
| N                     | -                       | 5                       | 5                       | 5                                 | -     | 8                   | 8                       | 8             | 8                                 |
| Light reserve warning | -                       | -                       | -                       | -                                 | -     | 5                   | -                       | 5             | -                                 |
| A inv.                | -                       | -                       | -                       | 6                                 | 4     | -                   | -                       | 9             | 9                                 |
| B inv.                | -                       | -                       | -                       | 7                                 | 6     | -                   | -                       | 7             | 7                                 |
| N inv.                | -                       | -                       | -                       | 8                                 | -     | -                   | -                       | 10            | 10                                |
| n. c.                 | -                       | -                       | 6, 7, 8                 | -                                 | 7, 8  | 2, 7, 9, 10, 11, 12 | 2, 5, 7, 9, 10, 11, 12  | 2, 11, 12     | 2, 5, 11, 12                      |
| Shield                | -                       | -                       | -                       | -                                 | -     | -                   | -                       | -             | -                                 |

## Options

### IP67 Shafts sealed to IP67 (not for 1 Vpp Sin/Cos)

#### Order key

The encoder WDGI 115T can be supplied in a full IP67 version.

**AAO**

Max. RPM: 3500 rpm

Permitted Shaft-Loading, axial: 80 N

Permitted Shaft-Loading, radial: 110 N

Max. PPR: 2500 ppr

Starting-torque: approx. 4 Ncm at ambient temperature

### Low temperature

#### Order key

The encoder WDGI 115T with the output circuit types F24, G24, H24, I24, P24, R24, F05, G05, H05, I05, P05, R05, 245, 524, 645 is also available with the extended temperature range -40 °C up to +85 °C [-40 °F up to +185 °F] (measured at the flange).

**ACA**

### Pressure equalising membrane

#### Order key

The WDGI 115T shaft encoder is also optionally available with a pressure equalising membrane. This prevents water from penetrating into the encoder housing in the case of high air humidity.

The IP67 protection level, temperature range and salt spray resistance are maintained.

Resistant to chemicals and solvents in accordance with DIN EN ISO 2812-1.

**ACR**

### Cable length

#### Order key

The encoder WDGI 115T 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

**XXX = Decimeter**

| Example Order No. | Type                                                                                                                                                                                                                                                                                                                                                                                                                          |                  |                            |                       |           | Your encoder |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|----------------------------|-----------------------|-----------|--------------|
| WDG 115T          | WDG 115T                                                                                                                                                                                                                                                                                                                                                                                                                      |                  |                            |                       |           | WDG 115T     |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                               |                  |                            |                       |           |              |
|                   | Shaft                                                                                                                                                                                                                                                                                                                                                                                                                         |                  |                            |                       |           |              |
| 10                | 10                                                                                                                                                                                                                                                                                                                                                                                                                            |                  |                            |                       |           |              |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                               |                  |                            |                       |           |              |
|                   | Pulses per revolution PPR:                                                                                                                                                                                                                                                                                                                                                                                                    |                  |                            |                       |           |              |
| 5000              | 2, 5, 10, 15, 20, 24, 25, 30, 36, 40, 48, 50, 60, 64, 72, 87, 90, 100, 120, 125, 127, 128, 150, 160, 180, 200, 216, 236, 240, 250, 254, 256, 300, 314, 320, 360, 400, 500, 512, 571, 600, 625, 720, 750, 768, 800, 810, 900, 1000, 1024, 1200, 1250, 1270, 1440, 1500, 1800, 2000, 2048, 2400, 2500, 3000, 3600, 4000, 4096, 4685, 5000, 10000, 12500, 20000, 25000<br>1 Vpp Sin/Cos only 1024, 2048<br>Other PPRs on request |                  |                            |                       |           |              |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                               |                  |                            |                       |           |              |
|                   | Channels:                                                                                                                                                                                                                                                                                                                                                                                                                     |                  |                            |                       |           |              |
| ABN               | AB, ABN (SIN: AB)                                                                                                                                                                                                                                                                                                                                                                                                             |                  |                            |                       |           |              |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                               |                  |                            |                       |           |              |
|                   | Output circuit                                                                                                                                                                                                                                                                                                                                                                                                                |                  |                            |                       |           |              |
| G24               | Resolution PPR                                                                                                                                                                                                                                                                                                                                                                                                                | Power supply VDC | Output circuit             | Light reserve warning | Order key |              |
|                   | up to 2500                                                                                                                                                                                                                                                                                                                                                                                                                    | 5 - 30           | HTL                        | -                     | H30       |              |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                               | 5 - 30           | HTL inverted               | -                     | R30       |              |
|                   | up to 5000                                                                                                                                                                                                                                                                                                                                                                                                                    | 4.75 - 5.5       | TTL                        | •                     | G05       |              |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                               | 4.75 - 5.5       | TTL                        | -                     | H05       |              |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                               | 4.75 - 5.5       | TTL, RS422 comp., inverted | •                     | I05       |              |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                               | 4.75 - 5.5       | TTL, RS422 comp., inverted | -                     | R05       |              |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                               | 10 - 30          | HTL                        | •                     | G24       |              |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                               | 10 - 30          | HTL                        | -                     | H24       |              |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                               | 10 - 30          | HTL inverted               | •                     | I24       |              |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                               | 10 - 30          | HTL inverted               | -                     | R24       |              |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                               | 10 - 30          | TTL, RS422 comp., inverted | •                     | 524       |              |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                               | 10 - 30          | TTL, RS422 comp., inverted | -                     | 245       |              |
|                   | (higher frequency)<br>1200 up to 25000                                                                                                                                                                                                                                                                                                                                                                                        | 4.75 - 5.5       | TTL                        | -                     | F05       |              |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                               | 4.75 - 5.5       | TTL, RS422 comp., inverted | -                     | P05       |              |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                               | 10 - 30          | HTL                        | -                     | F24       |              |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                               | 10 - 30          | HTL inverted               | -                     | P24       |              |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                               | 10 - 30          | TTL, RS422 comp., inverted | -                     | 645       |              |
|                   | 1024, 2048                                                                                                                                                                                                                                                                                                                                                                                                                    | 4.75 - 5.5       | 1 Vpp sin/cos              | -                     | SIN       |              |

| Example Order No. | Type                                                                                                                                                                                                                                                                                                                                                                                                                          |                  |                            |                       |           | Your encoder |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|----------------------------|-----------------------|-----------|--------------|
| WDG 115T          | WDG 115T                                                                                                                                                                                                                                                                                                                                                                                                                      |                  |                            |                       |           | WDG 115T     |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                               |                  |                            |                       |           |              |
|                   | Shaft                                                                                                                                                                                                                                                                                                                                                                                                                         |                  |                            |                       |           |              |
| 10                | 10                                                                                                                                                                                                                                                                                                                                                                                                                            |                  |                            |                       |           |              |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                               |                  |                            |                       |           |              |
|                   | Pulses per revolution PPR:                                                                                                                                                                                                                                                                                                                                                                                                    |                  |                            |                       |           |              |
| 5000              | 2, 5, 10, 15, 20, 24, 25, 30, 36, 40, 48, 50, 60, 64, 72, 87, 90, 100, 120, 125, 127, 128, 150, 160, 180, 200, 216, 236, 240, 250, 254, 256, 300, 314, 320, 360, 400, 500, 512, 571, 600, 625, 720, 750, 768, 800, 810, 900, 1000, 1024, 1200, 1250, 1270, 1440, 1500, 1800, 2000, 2048, 2400, 2500, 3000, 3600, 4000, 4096, 4685, 5000, 10000, 12500, 20000, 25000<br>1 Vpp Sin/Cos only 1024, 2048<br>Other PPRs on request |                  |                            |                       |           |              |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                               |                  |                            |                       |           |              |
|                   | Channels:                                                                                                                                                                                                                                                                                                                                                                                                                     |                  |                            |                       |           |              |
| ABN               | AB, ABN (SIN: AB)                                                                                                                                                                                                                                                                                                                                                                                                             |                  |                            |                       |           |              |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                               |                  |                            |                       |           |              |
|                   | Output circuit                                                                                                                                                                                                                                                                                                                                                                                                                |                  |                            |                       |           |              |
| G24               | Resolution PPR                                                                                                                                                                                                                                                                                                                                                                                                                | Power supply VDC | Output circuit             | Light reserve warning | Order key |              |
|                   | up to 2500                                                                                                                                                                                                                                                                                                                                                                                                                    | 5 - 30           | HTL                        | -                     | H30       |              |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                               | 5 - 30           | HTL inverted               | -                     | R30       |              |
|                   | up to 5000                                                                                                                                                                                                                                                                                                                                                                                                                    | 4.75 - 5.5       | TTL                        | •                     | G05       |              |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                               | 4.75 - 5.5       | TTL                        | -                     | H05       |              |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                               | 4.75 - 5.5       | TTL, RS422 comp., inverted | •                     | I05       |              |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                               | 4.75 - 5.5       | TTL, RS422 comp., inverted | -                     | R05       |              |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                               | 10 - 30          | HTL                        | •                     | G24       |              |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                               | 10 - 30          | HTL                        | -                     | H24       |              |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                               | 10 - 30          | HTL inverted               | •                     | I24       |              |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                               | 10 - 30          | HTL inverted               | -                     | R24       |              |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                               | 10 - 30          | TTL, RS422 comp., inverted | •                     | 524       |              |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                               | 10 - 30          | TTL, RS422 comp., inverted | -                     | 245       |              |
|                   | (higher frequency)<br>1200 up to 25000                                                                                                                                                                                                                                                                                                                                                                                        | 4.75 - 5.5       | TTL                        | -                     | F05       |              |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                               | 4.75 - 5.5       | TTL, RS422 comp., inverted | -                     | P05       |              |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                               | 10 - 30          | HTL                        | -                     | F24       |              |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                               | 10 - 30          | HTL inverted               | -                     | P24       |              |
|                   |                                                                                                                                                                                                                                                                                                                                                                                                                               | 10 - 30          | TTL, RS422 comp., inverted | -                     | 645       |              |
|                   | 1024, 2048                                                                                                                                                                                                                                                                                                                                                                                                                    | 4.75 - 5.5       | 1 Vpp sin/cos              | -                     | SIN       |              |



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