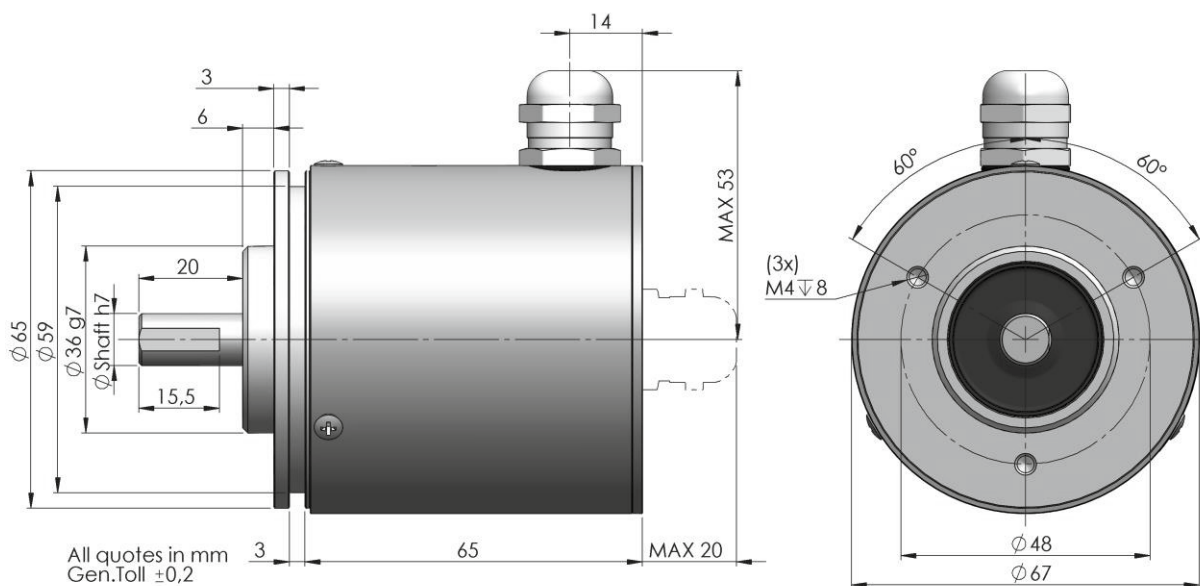


## Serie MS Series MS

## Absoluter Drehgeber mit Parallel- oder Analog Schnittstelle (ø65mm) Absolute encoder parallel or analogue (ø65mm)

### Mechanische Daten / Mechanics Data

|                                  |                                |
|----------------------------------|--------------------------------|
| Haube / Cover:                   | Aluminium / aluminium          |
| Flansch / Body:                  | Aluminium / Aluminium          |
| Welle / Shaft:                   | Edelstahl / Stainless steel    |
| Kugellager / Bearings:           | doppelt gelagert / 2 ballraces |
| Gewicht / Weight:                | 300 g                          |
| IP Schutzart / IP Protection:    | IP65                           |
| Umdrehungen / RPM:               | max. 6000                      |
| Drehmoment / Torque:             | 5Ncm                           |
| Trägheitsmoment / Inertia:       | 100 gcm <sup>2</sup>           |
| Wellenbelastung / Shaft Loading: | Axial 100N – Radial 100N       |



## Serie MS Series MS

### Elektronische Daten / Electronics Data

|                                                      |                                                                                     |
|------------------------------------------------------|-------------------------------------------------------------------------------------|
| Versorgungsspannung /<br><i>Power supply:</i>        | 5/24V, hängt von der Ausgangsschaltung ab<br>depends on the electronics circuit     |
| max. Stromaufnahme /<br><i>Current consumption:</i>  | max 100mA                                                                           |
| max. Ausgangsbelastung /<br><i>Permissible load:</i> | 40mA                                                                                |
| Frequenz /<br><i>Frequency:</i>                      | 50KHz (LSB)                                                                         |
| Schutz /<br><i>Protections:</i>                      | Kurzschlussfest, Umkehrpolarität<br><i>Against short circuit, reversal polarity</i> |
| Betriebstemperatur /<br><i>Operating Temp.:</i>      | -20/+70°C                                                                           |

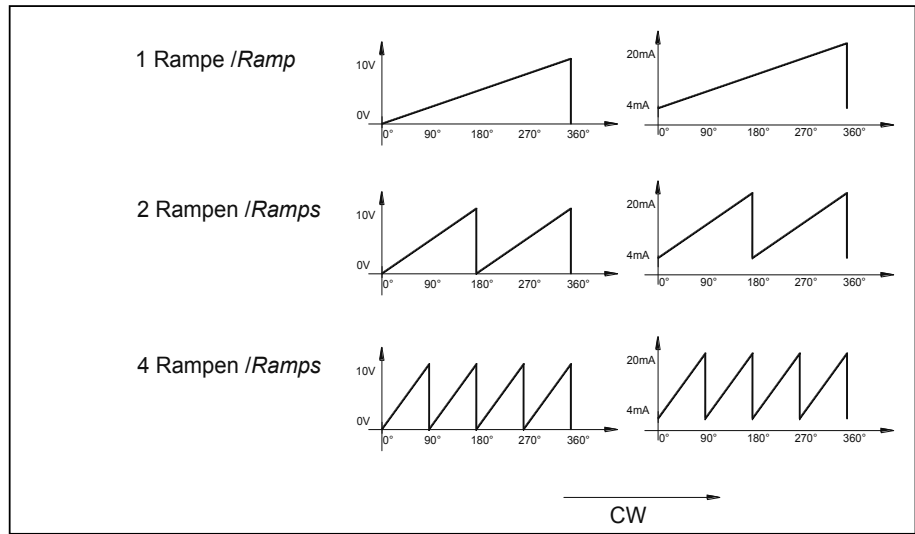
### Bestellbezeichnung / Ordering Code

| MS | *                                       | 3                 | *                                                                                                                                                                                                                                                                         | *                                                           | *                                                                                                                                                                                  | / | **                                                                             |  |
|----|-----------------------------------------|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|--------------------------------------------------------------------------------|--|
|    | Welle<br>Shaft                          | Flansch<br>Flange | Ausgangsschaltungen<br>Output                                                                                                                                                                                                                                             | Optionen<br>Options                                         | Anschlüsse<br>Connections                                                                                                                                                          |   | Auflösung<br>Resolution                                                        |  |
|    |                                         |                   | <b>Digitalausgang / Digital output max 13bit (8192)</b>                                                                                                                                                                                                                   |                                                             |                                                                                                                                                                                    |   |                                                                                |  |
|    | 3 = Ø 6 mm<br>6 = Ø 8 mm<br>1 = Ø 10 mm | 3                 | 1 = Gray NPN 11/24V<br>2 = Gray Push-Pull 11/24V<br>3 = Gray TTL 5V<br>4 = Bin NPN 11/24V<br>5 = Bin Push-Pull 11/24V<br>6 = Bin TTL 5V<br>7 = BCD NPN 11/24V<br>8 = BCD Push-Pull 11/24V<br>9 = BCD TTL 5V<br><br>BCD: Auflösung max. 1024<br><i>Resolution max 1024</i> | A = None<br>B = Open Coll.<br>E = GRAY Excess<br>S = Strobe | <b>Kabel / Cable</b><br>9 = Cable Axi<br>3 = Cable Rad<br><br><b>SUB-D 25p</b><br>N = 9413 Axi<br>R = 9413 Rad<br><br><b>M23 12p/16p</b><br>2 = 9416/9426 Axi<br>5 = 9416/9426 Rad |   | max 13bit<br><br>360 = 360<br>1024 = 1024<br>4096 = 4096<br>...<br>8192 = 8192 |  |
|    |                                         |                   | <b>Digitalausgang / Digital output max 17bit (131072)</b>                                                                                                                                                                                                                 |                                                             |                                                                                                                                                                                    |   |                                                                                |  |
|    |                                         |                   | 2 = Gray Push-Pull 11/24V<br>3 = Gray TTL 5V<br>5 = Bin Push-Pull 11/24V<br>6 = Bin TTL 5V                                                                                                                                                                                | A = None<br>S = Strobe<br>Z = Preset                        | <b>SUB-D 25p</b><br>N = 9413 Axi<br>R = 9413 Rad                                                                                                                                   |   | max 17bit<br><br>12C = 4096<br>13C = 8192<br>...<br>17C = 131072               |  |
|    |                                         |                   | <b>Analogausgang / Analogue output max 14bit</b>                                                                                                                                                                                                                          |                                                             |                                                                                                                                                                                    |   |                                                                                |  |
|    |                                         |                   | C = 4-20mA<br>M = 4-20mA / 0-10V<br>D = 0-10V<br>Versorgungsspannung /<br><i>Power Supply 24V</i>                                                                                                                                                                         | A = None<br>Z = Preset                                      | <b>M23 12p/16p</b><br>2 = 9416/9426 Axi<br>5 = 9416/9426 Rad                                                                                                                       |   | R1 = 1 Ramp/turn<br>R2 = 2 Ramp/turn<br>R4 = 4 Ramp/turn                       |  |

### Analogausgang / Analogue Output

Versorgungsspannung / Power Supply 24V

| Anschluss 9416<br>Connections 9416 |                |
|------------------------------------|----------------|
| 1                                  | -              |
| 2                                  | +              |
| 3                                  | Iout+ (4-20mA) |
| 4                                  |                |
| 5                                  | Vout+ (0-10V)  |
| 6                                  |                |
| 7                                  | Ud/Down        |
| 8                                  |                |
| 9                                  |                |
| 10                                 |                |
| 11                                 |                |
| 12                                 |                |



### Anschlüsse Digitalausgang / Connections Digital Output

|                               | 0 Volt          | + Volt      | 0 2           | 1 2           | 2 2          | 3 2           | 4 2         | 5 2              | 6 2             | 7 2                        | 8 2                   | 9 2                     | 10 2                     | 11 2                         | M                        | DIR <->                   |
|-------------------------------|-----------------|-------------|---------------|---------------|--------------|---------------|-------------|------------------|-----------------|----------------------------|-----------------------|-------------------------|--------------------------|------------------------------|--------------------------|---------------------------|
| Stecker / Connector 9416 12 p | P1              | P2          | P3            | P4            | P5           | P6            | P7          | P8               | P9              | P10                        | P11                   |                         |                          |                              |                          | P12                       |
| Stecker / Connector 9426 16 p | P1              | P2          | P3            | P4            | P5           | P6            | P7          | P8               | P9              | P10                        | P11                   | P12                     | P13                      | P14                          | P15                      | P16                       |
| Stecker / Connector 9413 25 p | P1              | P2          | P3            | P4            | P5           | P6            | P7          | P8               | P9              | P10                        | P11                   | P12                     | P13                      | P14                          | P15                      | P16                       |
| Kabel / Cable                 | Schwarz / Black | Blau / Blue | Braun / Brown | Beige / Beige | Grün / Green | Gelb / Yellow | Rosa / Pink | Violett / Violet | Orange / Orange | Transparent / Transparency | Weiss-Rot / White-Red | Weiss-Blau / White-Blue | Grün-Weiss / Green White | Violett-Weiss / Violet-White | Gelb-Grün / Yellow-Green | Gelb-Weiss / Yellow-White |

M = Optionale Ausgänge  
optional outputs

DIR <-> = Drehrichtung: Im Uhrzeigersinn oder gegen den Uhrzeigersinn. Im Uhrzeigersinn ist Standard. Gegen den Uhrzeigersinn DIR <-> also **0 Volt**.  
Signal direction: clockwise or anticlockwise. Clockwise is standard. Anticlockwise connect DIR <-> to **0 Volt**