



EMA 50 A / B / BY BIT PARALLEL - SSI

SOLID SHAFT MAGNETIC SINGLETURN ABSOLUTE ENCODER



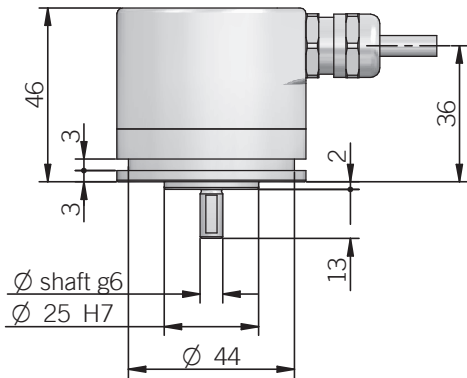
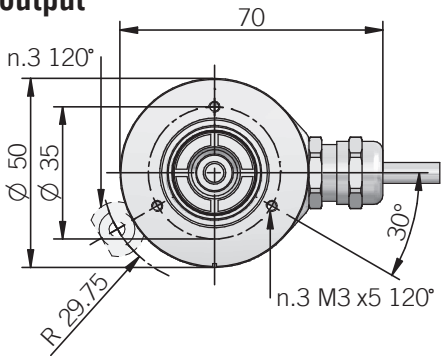
Specifications

Singleturn absolute magnetic encoder size 50 mm with solid shaft

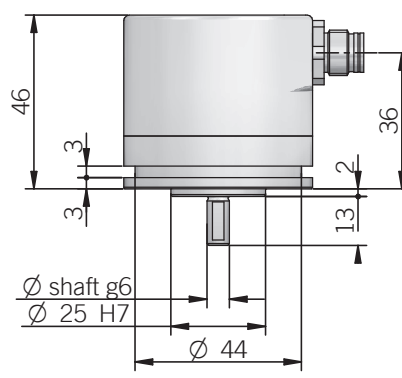
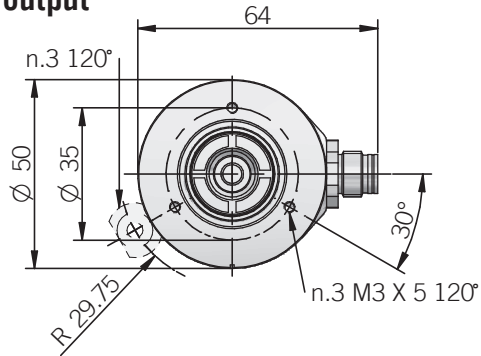
- Resolution up to 13 bit (8192 ppr)
- Power supply up to +30 VDC with SSI or Bit Parallel as electronic interface
- Code reset for easy setup
- Cable or M12 output, other connectors available on cable end
- Sturdy construction (separated chambers)
- Solid shaft diameter up to 10 mm
- IP 67 enclosure rating
- Mounting by synchronous flange

| ORDERING CODE | EMA | 50B | 1024 | G | 8/30 | N | N | X | 6 | X | 3 | P | R | .XXX |
|--|-----|-----|------|---|------|---|---|---|---|---|---|---|---|------|
| <p>SERIES magnetic singleturn absolute encoder EMA</p> <p>MODEL synchronous flange ø 25 mm 50A synchronous flange ø 30 mm 50B synchronous flange ø 25 mm anodized 50BY</p> <p>RESOLUTION (N / C / R / U / P interface) ppr from 2 to 4096 (S interface) ppr from 2 to 8192</p> <p>CODE TYPE binary B gray G (no powers of 2) binary offset code (0-XXX) BC (no powers of 2) gray offset code (0-XXX) GC</p> <p>POWER SUPPLY 5 V DC 5 8 ... 30 V DC 8/30</p> <p>ELECTRONIC INTERFACE NPN N NPN open collector C PNP R PNP open collector U push pull P Serial Synchronous Interface - SSI S</p> <p>LOGIC negative N positive P</p> <p>OPTIONS to be reported if not used X reset ZE (with binary or offset binary code) strobe S (with binary or offset binary code) strobe and code reset SIZE</p> <p>SHAFT DIAMETER mm 6 mm 8 9,52 (3/8") mm 9 mm 10</p> <p>ENCLOSURE RATING IP 65 X IP 67 S</p> <p>MAX ROTATION SPEED 3000 rpm 3</p> <p>OUTPUT TYPE cable (standard length 0,5 m) P (S interface) M12 connector M12 <i>female connector included, without female please add 162 as variant code</i></p> <p>DIRECTION TYPE axial A radial R</p> <p>VARIANT custom version XXX</p> | | | | | | | | | | | | | | |

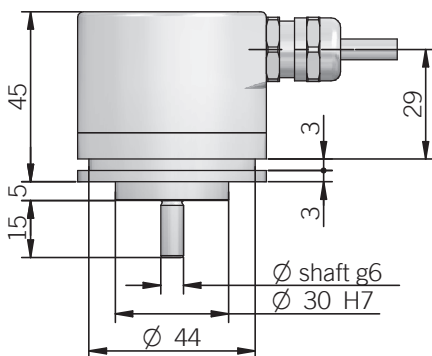
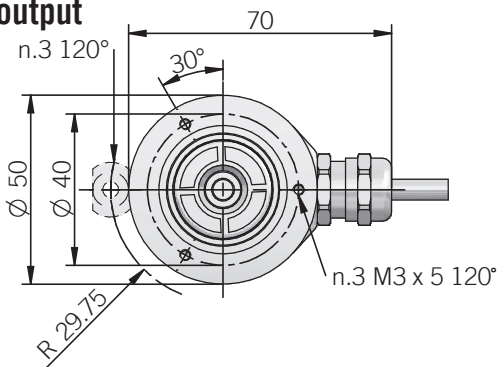
**EMA 50 A
radial cable
output**



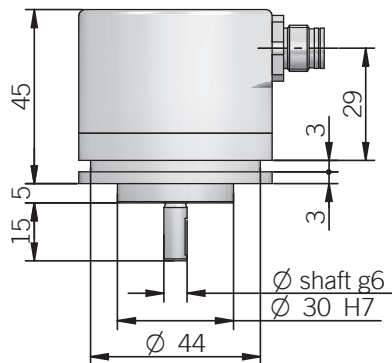
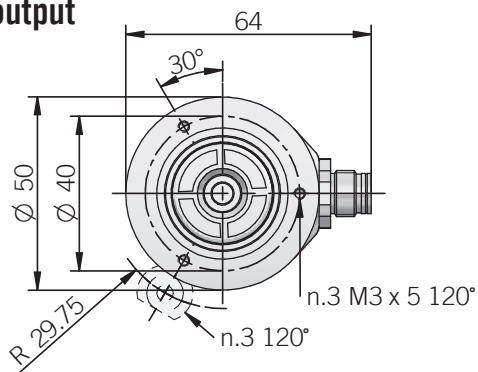
**EMA 50 A
radial M12
output**



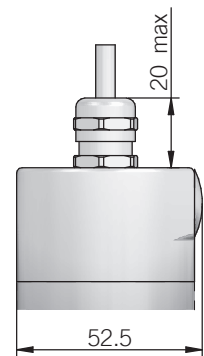
**EMA 50 B / BY
radial cable
output**



**EMA 50 B / BY
radial M12
output**



Axial output





ELECTRICAL SPECIFICATIONS

| | |
|---|--|
| Resolution | from 2 to 4096 ppr with N / C / P / R / U interface from 2 to 8192 ppr with S interface |
| Power supply | 5 = 4,5 ... 5,5 V DC 8/30 = 7,6 ... 31,5 V DC |
| Current consumption without load | < 100 mA |
| Max load current | 20 mA / channel (push pull) 40 mA / channel (NPN / PNP) |
| Output type* | NPN / NPN open collector / PNP / PNP open collector / push pull / RS-422 |
| Auxiliary inputs (U/D - Reset) | active high (+Vdc) <i>connect to 0V if not used / Reset tmin 150 ms</i> |
| Max frequency | output: 25 kHz LSB (Bit parallel) clock input: 100 kHz ... 1 MHz (SSI) |
| SSI monostable time (Tm) | 20 µs |
| SSI pause time (Tp) | > 35 µs |
| Strobe time | 20 µs |
| Accuracy | ± 0.35° typical |
| SSI frame | (MSB ... LSB) 13 bit data length |
| Counting direction | decreasing clockwise (shaft view) |
| Start-up time | 150 ms |
| Electromagnetic compatibility | IEC 61000-6-2 IEC 61000-6-4 |

*output levels according to power supply, for further details please see under Technical basics section

BIT PARALLEL CONNECTIONS

| Function | Gray / Binary | Cable output |
|-------------|-----------------------------------|----------------|
| bit 1 (LSB) | G ⁰ / B ⁰ | green |
| bit 2 | G ¹ / B ¹ | yellow |
| bit 3 | G ² / B ² | blue |
| bit 4 | G ³ / B ³ | brown |
| bit 5 | G ⁴ / B ⁴ | orange or pink |
| bit 6 | G ⁵ / B ⁵ | white |
| bit 7 | G ⁶ / B ⁶ | grey |
| bit 8 | G ⁷ / B ⁷ | violet |
| bit 9 | G ⁸ / B ⁸ | grey / pink |
| bit 10 | G ⁹ / B ⁹ | white / green |
| bit 11 | G ¹⁰ / B ¹⁰ | brown / green |
| bit 12 | G ¹¹ / B ¹¹ | white / yellow |
| 0 Volt | / | black |
| + Vdc | / | red |
| U / D | / | red / blue |
| RESET | / | yellow / brown |
| STROBE | / | white / grey |
| ⊥ | / | shield |

SSI CONNECTIONS

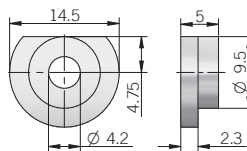
| Function | Cable output | 8 pin M12 connector |
|----------|----------------|---------------------|
| + Vdc | red | 8 |
| 0 Volt | black | 5 |
| data + | green | 3 |
| data - | brown | 2 |
| clock + | yellow | 4 |
| clock - | orange or pink | 6 |
| U / D | red / blue | 7 |
| RESET | white | 1 |
| ⊥ | shield | housing |

MECHANICAL SPECIFICATIONS

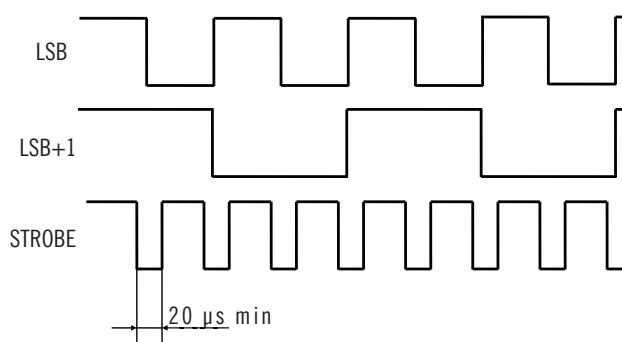
| | |
|---|--|
| Shaft diameter | ∅ 6 / 8 / 9,52 (3/8") / 10 mm |
| Enclosure rating | X = IP 65 (IEC 60529) S = IP 67 (IEC 60529) |
| Max rotation speed | 3000 rpm continuous / 5000 rpm instantaneous |
| Max shaft load | 30 N axial / 50 N radial |
| Shock | 50 G, 11 ms (IEC 60068-2-27) |
| Vibration | 20 G, 10 ... 2000 Hz (IEC 60068-2-6) |
| Moment of inertia | 0,5 x 10 ⁻⁶ kgm ² |
| Starting torque (at +20°C / +68°F) | < 0,03 Nm |
| Body material | EN-AW 2011 aluminum |
| Shaft material | 1.4305 / AISI 303 stainless steel |
| Housing material | EN-AW 2011 aluminum |
| Bearings | 2 ball bearings |
| Bearings life | 10 ⁹ revolutions |
| Operating temperature | -25° ... +85°C (-13° ... +185°F) |
| Storage temperature | -25° ... +85°C (-13° ... +185°F) |
| Weight | 200 g (7,05 oz) |

ACCESSORIES

set n.3 fixing clamps
P/N 94080001



STROBE TIMING



M12 connector (8 pin)
M12 A coded
solder side view FV

