EMA 50 A / AY / B / BY

SINGLETURN ABSOLUTE
MAGNETIC ENCODER

ISO 9001:2000

MAGNETIC SINGLETURN ABSOLUTE ENCODERS

MAIN FEATURES

Singleturn absolute magnetic encoder size 50 mm.

Main characteristics:

- Up to 8192 ppr.
- Parallel and SSI electronic interface.
- Several mechanical flanges.
- Up to IP 67 protection grade.

ORDERING CODE

EMA 50 B 512 G 5 N N X 6 X 3 P R . XXX

SERIES
singleturn absolute magnetic encoder EMA

SIZE
mm 50

BODY TYPE
flange type A aluminum A
flange type A anodized aluminum AY
flange type B aluminum B
flange type B anodized aluminum BY

RESOLUTION
ppr from 2 to 4096 with N / C / P / R / U interface
ppr from 2 to 8192 with S interface
please directly contact our offices for pulses availability

CODE TYPE
Binary B
Gray G
Adjusted Binary BC
Adjusted Gray GC

POWER SUPPLY
5 V DC 5
8 ... 30 V DC 8/30

ELECTRONIC INTERFACE
NPN (negative logic standard) N
NPN OPEN COLLECTOR (negative logic standard) C
PNP (positive logic standard) R
PNP OPEN COLLECTOR (positive logic standard) U
PUSH PULL (positive logic standard) P
SSI (positive logic standard) S

LOGIC
N Negative
P Positive

OPTION
X unused option
ZE code reset
S strobe
SZE strobe and code reset
S and SZE option available only with binary or adjusted binary code type

SHAFT DIAMETER
6 mm
8 mm
9 9.52 mm (3/8")
10 mm

ENCLOSURE RATING
X IP 65 (standard)
S IP 67 (optional)

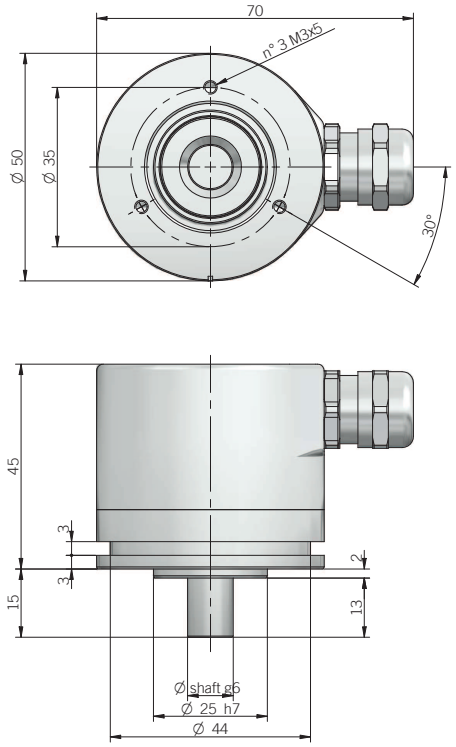
MAX ROTATION SPEED
3 3000 rpm continuous (5000 rpm peak)

OUTPUT TYPE
P cable output (standard length 0.5 m)
M12 M12 connector output (8-pin)
(only SSI with code reset ZE)

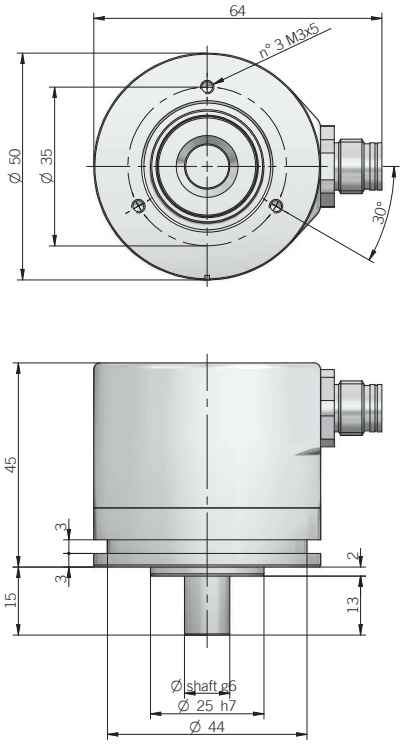
OUTPUT DIRECTION
R radial
A axial

VARIANT
XXX custom version

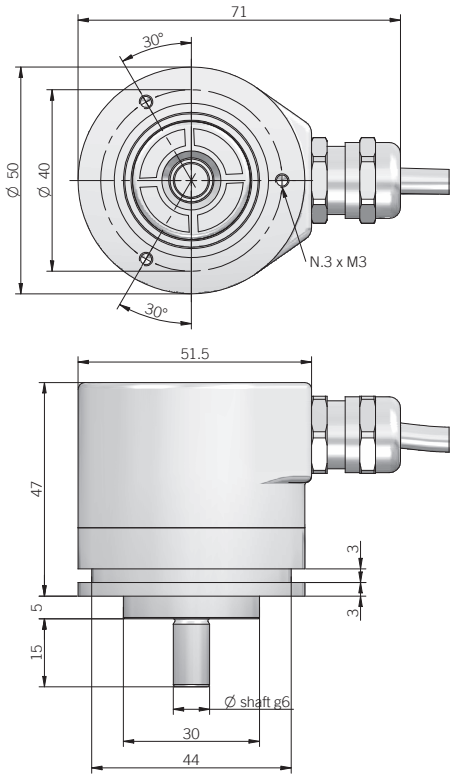
EMA 50 A / AY
radial cable output



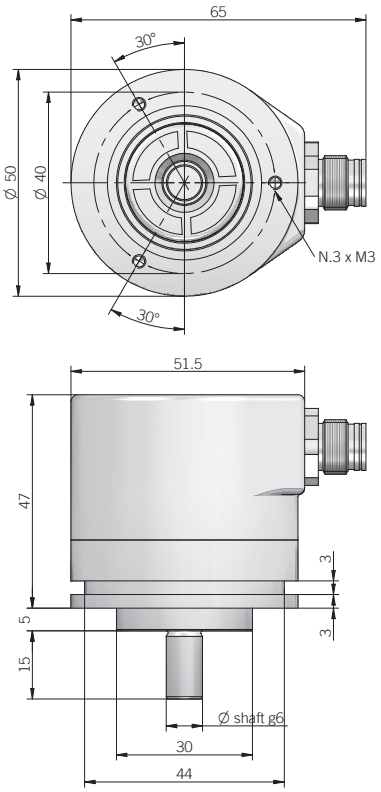
EMA 50 A / AY
radial M12 output



EMA 50 B / BY
radial cable output



EMA 50 B / BY
radial M12 output



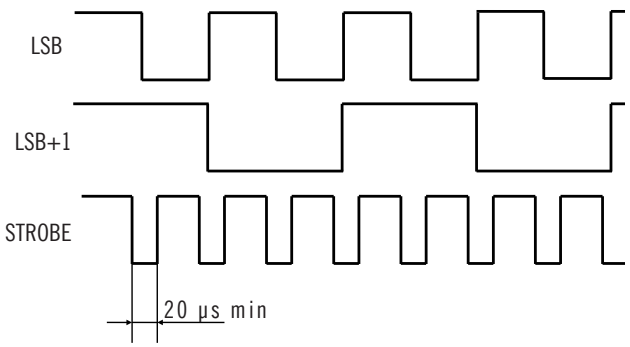
Electrical specifications

Resolution	from 2 to 4096 ppr with N / C / P / R / U interface from 2 to 8192 ppr with S interface
Power supply	5 V DC ± 10% 8 ... 30 V DC ± 5%
Current consumption without load	< 100 mA
Max load current	20 mA for channel (push pull) 40 mA for channel (NPN / PNP)
Electronic interface	NPN / NPN OPEN COLLECTOR / PNP / PNP OPEN COLLECTOR / PUSH PULL / RS422 SSI
Auxiliary inputs (U/D - Reset)	active high (+Vdc) *connect to 0V if not used / Reset t_{min} 150 ms*
Max output frequency	25 kHz parallel / 1 MHz SSI
Monostable time (SSI)	20 µs
Strobe time (binary code)	20 µs *with N / C / R / U / P interface*
Accuracy	± 0.35° max
Counting direction	decreasing clockwise (shaft view)
Start-up time	150 ms
Electromagnetic compatibility	IEC 61000-6-2 IEC 61000-6-4

Mechanical specifications

Shaft diameter	6 / 8 / 9.52 / 10 mm
Enclosure rating	IP 65 (standard) (IEC 60529) IP 67 (optional) (IEC 60529)
Max rotation speed	3000 rpm continuous 5000 rpm peak
Max shaft load	30N (3 Kgf) axial 50N (5 Kgf) radial
Shock	50 G, 11 ms (IEC 60068-2-27)
Vibration	10 G, 10÷2000 Hz (IEC 60068-2-6)
Bearings	n° 2 ball bearings
Bearings life	10^9 revolutions
Shaft material	stainless steel UNI X10CrNiS1809
Body material	aluminium UNI 9002/5
Housing material	aluminium UNI 9002/5
Operating temperature	-25° ... +85 °C
Storage temperature	-25° ... +85 °C
Weight	200 g

Strobe timing



Connections for PARALLEL encoder

Function	B / G	16 / 18 wire cable colours
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	gray
bit 8	G^7 / B^7	violet
bit 9	G^8 / B^8	gray / pink
bit10	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 / gray
⏚	/	shield

Connections for SSI encoder

Function	Wire cable	M12 Connector (8-pin)
+ V dc	red	8
0 Volt	black	5
data +	green	3
data -	brown	2
clk +	yellow	4
clk -	orange or pink	6
U / D	red / blue	7
RESET	white	1
⏚	shield	/

M12 Connector (8-pin)
(front view)