

MAIN FEATURES

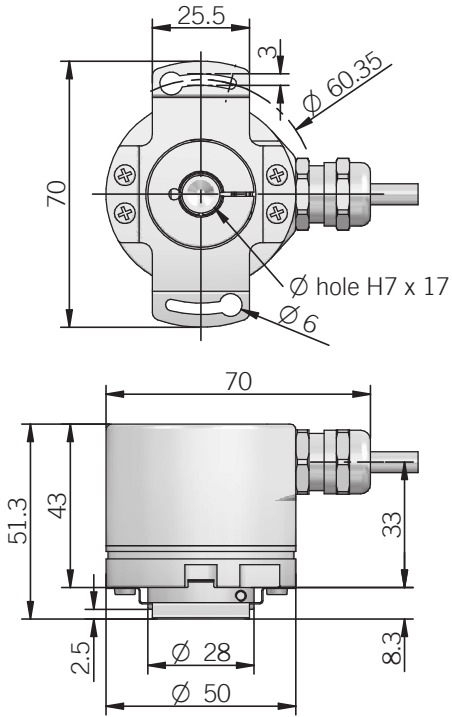
Singleturn absolute magnetic encoder size 50 mm with blind hollow shaft

- Resolution up to 13 bit (8192 ppr)
- Power supply up to +30 V DC with SSI or Bit Parallel as electrical interface
- Code reset for easy setup
- Cable or M12 output, other connector available on cable end
- Sturdy construction (separated chambers)
- Blind hollow shaft diameter up to 15 mm
- IP 67 enclosure rating
- Mounting by stator coupling or torque pin

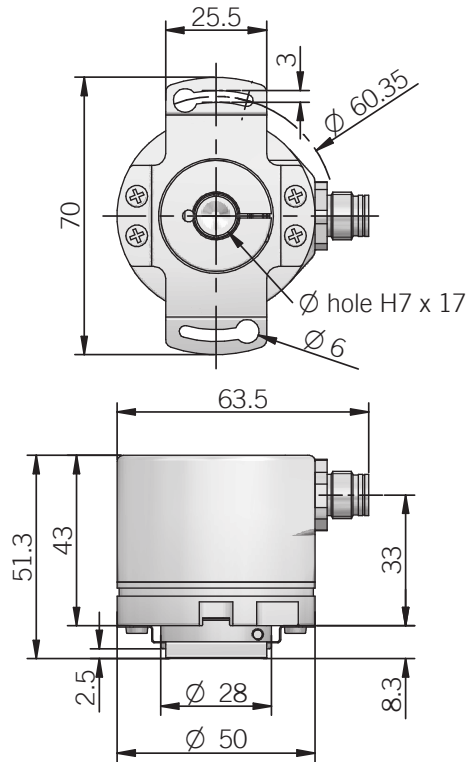


ORDERING CODE	EMA	50F	1024	G	8/30	N	N	X	6	X	3	P	R	.XXX
SERIES magnetic singleturn absolute encoder	EMA													
MODEL blind hollow shaft with stator coupling blind hollow shaft with torque pin		50F 50G												
RESOLUTION (N / C / R / U / P interface) ppr from 2 to 4096 (S interface) ppr from 2 to 8192			1024											
CODE TYPE binary gray (no powers of 2) binary offset code (0-XXX) (no powers of 2) gray offset code (0-XXX)				G	8/30	N	N	X						
POWER SUPPLY 5 V DC 8 ... 30 V DC					8/30				6					
ELECTRICAL INTERFACE NPN NPN open collector PNP PNP open collector push pull Serial Synchronous Interface - SSI						N	N	X				P	R	
LOGIC negative positive														
OPTIONS to be reported if not used reset (with binary code) strobe (with binary code) strobe and code reset								X	Z	S	SZ			
BORE DIAMETER mm (3/8") mm mm mm mm mm									6 8 9,52 10 12 14 15					
ENCLOSURE RATING IP 65 IP 67										X S				
MAX ROTATION SPEED 3000 rpm											3			
OUTPUT TYPE cable (standard length 0,5 m) (S interface) M12 connector female connector included, without female please add 162 as variant code												P M12		
DIRECTION TYPE axial radial													A R	
VARIANT custom version														XXX

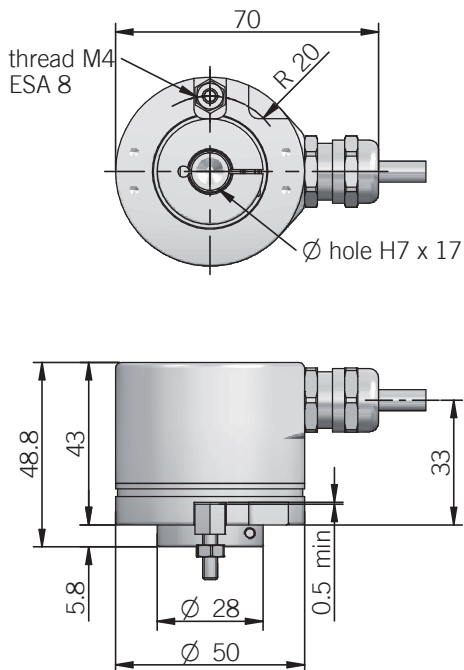
50 F
radial cable output



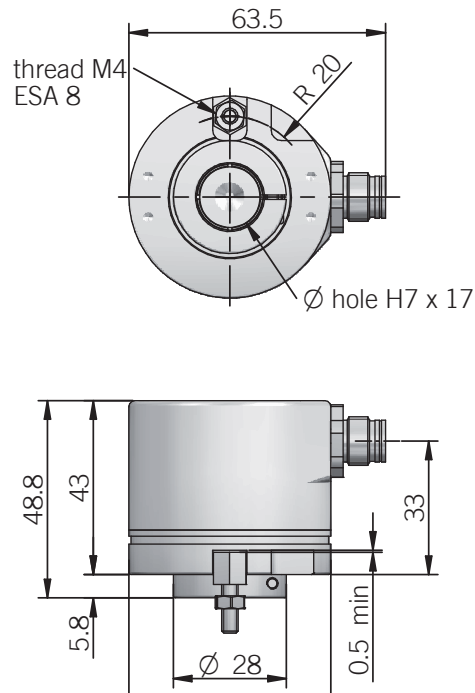
50 F
radial M12 output



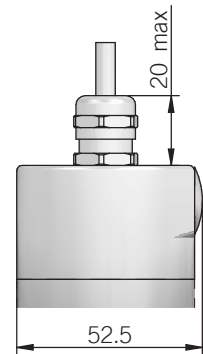
50 G
radial cable output



50 G
radial M12 output



Axial output



torque pin is included in model G, for mounting instruction please refer to product installation notes
dimensions in mm

ELECTRICAL SPECIFICATIONS

Resolution	from 2 to 4096 ppr (N / C / P / R / U interface) from 2 to 8192 ppr (S interface)
Power supply¹	5 = 4,5 ... 5,5 V DC 8/30 = 7,6 ... 31,5 V DC (reverse polarity protection)
Current consumption without load	< 100 mA
Max load current	P = 20 mA / channel N / C / R / U = 40 mA / channel
Electrical interface²	NPN / NPN open collector (ULN2003A) PNP / PNP open collector (TD62783) push pull (iC-DL) RS-422 (LTC1690 or equivalent)
Auxiliary inputs (U/D - RESET)	active high (+V DC) connect to 0 V if not used / RESET t _{min} 150 ms
Max frequency	output: 25 kHz LSB (Bit parallel) clock input: 100 kHz ... 1 MHz (SSI)
Code type	binary or gray
SSI monostable time (T_m)	20 μs
SSI pause time (T_p)	> 35 μs
Strobe time	20 μs
SSI frame	(MSB ... LSB) 13 bit data length
Counting direction	decreasing clockwise (shaft view)
Start-up time	150 ms
Accuracy	± 0,35° typical
Electromagnetic compatibility	according to 2014/30/EU directive
RoHS	according to 2015/863/EU directive
UL / CSA	certificate n. E212495

¹ as measured at the transducer without cable influences

² for further details refer to OUTPUT LEVELS on TECHNICAL BASICS section

³ maximum load for static usage

⁴ measured on the transducer flange

⁵ condensation not allowed

BIT PARALLEL CONNECTIONS

Function	Gray / Binary	Cable
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 V	/	black
+ V DC	/	red
U / D	/	red / blue
RESET	/	yellow / brown
STROBE	/	white / grey
⊥	/	shield

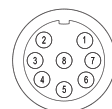
MECHANICAL SPECIFICATIONS

Bore diameter	∅ 6* / 8* / 9,52* (3/8") / 10* / 12* / 14 / 15 mm * with supplied shaft adapter
Enclosure rating	X = IP 65 (IEC 60529) S = IP 67 (IEC 60529)
Max rotation speed	3000 rpm continuous
Max shaft load³	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	4 x 10 ⁻⁶ kgm ² (95 x 10 ⁻⁶ lbf ²)
Starting torque (at +20°C / +68°F)	< 0,03 Nm (4,25 Ozin)
Bearing stage material	EN-AW 2011 aluminum
Shaft material	1.4305 / AISI 303 stainless steel
Housing material	EN-AW 2011 aluminum
Bearings	n.2 ball bearings
Bearings life	10 ⁹ revolutions
Operating temperature^{4,5}	-25° ... +85°C (-13° ... +185°F)
Storage temperature⁵	-25° ... +85°C (-13° ... +185°F)
Fixing torque for collar clamping	1 Nm (142 Ozin) recommended
Weight	200 g (7,05 oz)

SSI CONNECTIONS

Function	Cable	8 pin M12
+ V DC	red	8
0 V	black	5
DATA +	green	3
DATA -	brown or grey	2
CLOCK +	yellow	4
CLOCK -	orange or pink	6
U / D	red / blue	7
RESET	white	1
⊥	shield	housing

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



STROBE TIMING

