

MAIN FEATURES

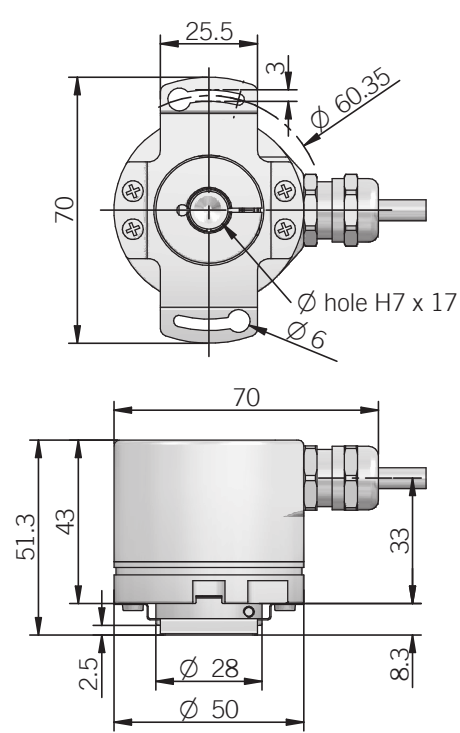
Singleturn absolute magnetic encoder size 50 mm with blind hollow shaft

- 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 connectors available on cable end
- Sturdy construction
- Blind hollow shaft diameter up to 15 mm
- IP 67 enclosure rating
- Mounting by stator coupling or torque pin

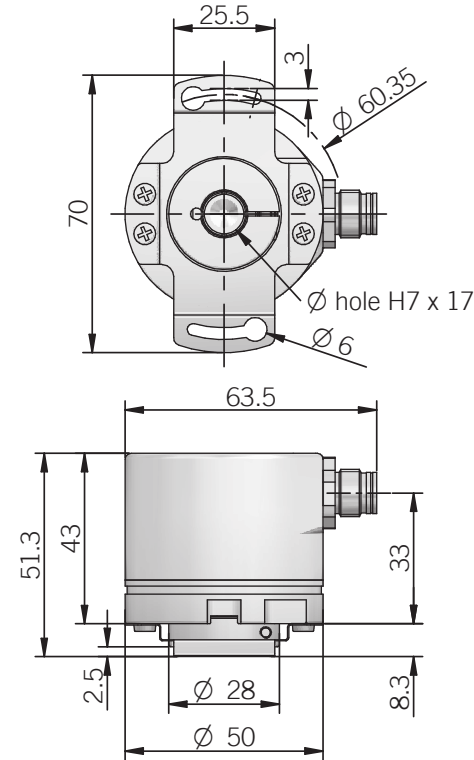


ORDERING CODE	EMA	50F	1024	G	8/30	N	N	X	15	X	3	M12	R	.162	+XXX
SERIES magnetic singleturn absolute encoder	EMA														
MODEL blind hollow shaft with stator coupling blind hollow shaft with torque pin		50F 50G													
RESOLUTION (N / C / R / U / P interface) ppr from (S interface) ppr from			2 to 4096 2 to 8192												
CODE TYPE binary gray (no powers of 2) binary offset code (0-XXX) (no powers of 2) gray offset code (0-XXX)				B G BC GC											
POWER SUPPLY 5 V DC 8 ... 30 V DC				5 8/30											
ELECTRICAL INTERFACE NPN NPN open collector PNP PNP open collector push pull Serial Synchronous Interface - SSI				N C R U P S											
LOGIC negative positive				N P											
OPTIONS to be reported if not used reset with external input (with binary code) strobe (with binary code) strobe and reset with external input				X ZE S SZE											
BORE DIAMETER mm mm diameters 5 / 6 / 8 / 10 / 12 mm with optional shaft adapter, see Accessories				14 15											
ENCLOSURE RATING IP 65 IP 67				X S											
MAX ROTATION SPEED 3000 rpm				3											
OUTPUT TYPE cable (standard length 0,5 m) preferred cable lengths 1,5 / 2 / 3 / 5 / 10 m, to be added after DIRECTION TYPE (eg. PR5) (S interface) M12 plug connector				P M12											
DIRECTION TYPE axial radial				A R											
SOCKET socket not included to be reported only with connector output (eg. M12R.162), for socket see Accessories				.162											
VARIANT custom version				XXX											

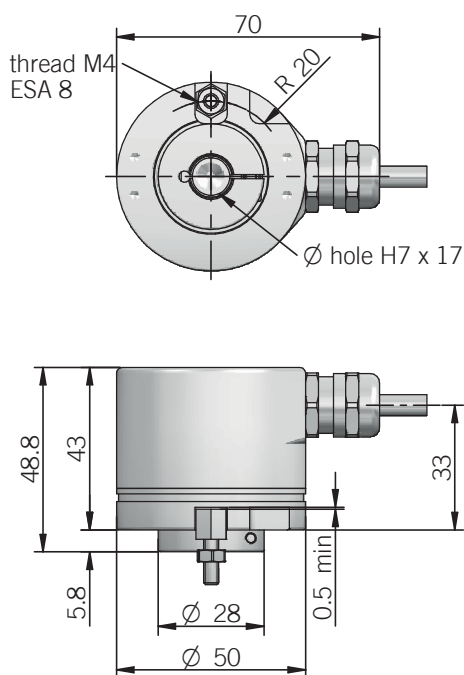
50F WITH RADIAL CABLE OUTPUT



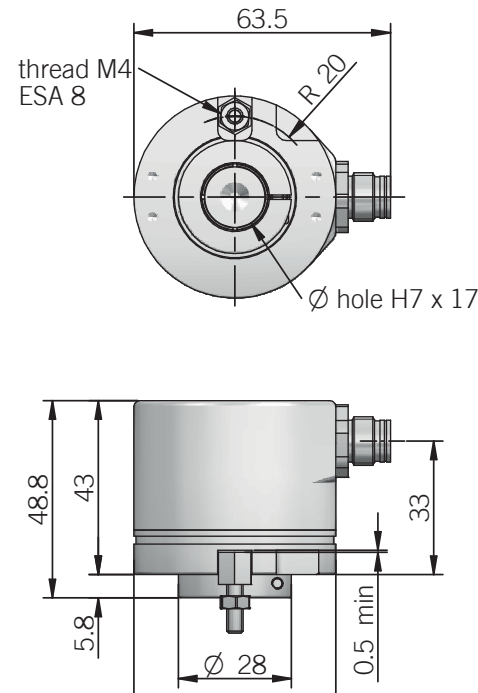
50F WITH RADIAL M12 OUTPUT



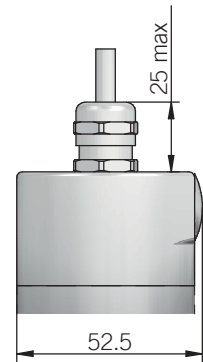
50G WITH RADIAL CABLE OUTPUT



50G WITH RADIAL M12 OUTPUT



DIMENSIONS WITH AXIAL OUTPUT



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

recommended mating shaft tolerance g6
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 similar)
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
Mean time to dangerous failure (MTTF_d)³ according to EN ISO 13849-1	149 years with BIT PARALLEL output 160 years with SSI output
Mission time (T_m)³	20 years
Diagnostic coverage (DC)³	0%
Cable type SSI	shielded - fixed installation conductors section 0,22 mm ² / AWG 24 bending radius min 60 mm
Cable type Bit Parallel	shielded - fixed installation conductors section 0,14 mm ² / AWG 26 bending radius min 50 mm
Electromagnetic compatibility	according to 2014/30/EU directive
RoHS	according to 2011/65/EU directive
UL / CSA	file n. E212495

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	∅ 14 / 15 mm ∅ 5 / 6* / 8* / 10* / 12* mm * with optional shaft adapter, please refer to Accessories
Enclosure rating IEC 60529	X = IP 65 S = IP 67
Max rotation speed	3000 rpm continuous
Max shaft load⁴	30 N (6,74 lbs) axial / 50 N (11,24 lbs) 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	aluminum
Shaft material	stainless steel
Housing material	painted aluminum
Bearings	n.2 ball bearings
Bearings life	10 ⁹ revolutions
Operating temperature^{5,6}	-25° ... +85°C (-13° ... +185°F)
Storage temperature⁶	-25° ... +85°C (-13° ... +185°F)
Weight	200 g (7,05 oz)

¹ as measured at the transducer without cable influences

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

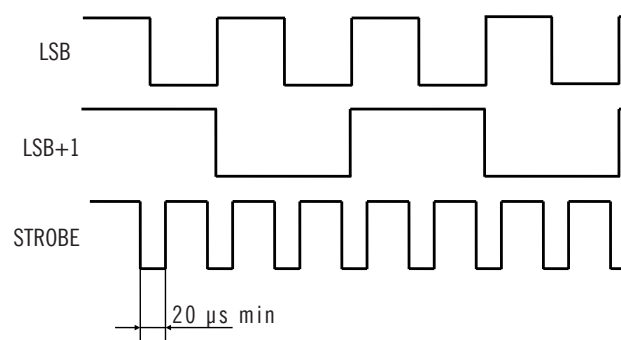
³ this product is not a safety component, for further details refer to TECHNICAL BASICS section

⁴ maximum load for static usage

⁵ measured on the transducer flange

⁶ condensation not allowed

STROBE TIMING



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
front view
