EMA 36 F / G
SSI

BLIND HOLLOW SHAFT MAGNETIC SINGLETURN ABSOLUTE ENCODER

MAIN FEATURES

Miniaturised singleturn absolute encoders for applications with limited space.

- Contactless magnetic sensing technology (magnetic ASIC)
- Up to 18 bit as singleturn resolution
- Power supply up to +30 V DC with SSI as electrical interface
- Code reset for easy setup
- Cable or M12 output, other connectors available at cable end
- Blind hollow shaft up to 10 mm diameter
- Mounting by stator coupling or torque pin

ORDERING CODE	EMA	36F	13	G	8/30	S	P	X	10	X	8	M12R	. 162	+XXX

SERIES
magnetic singleturn absolute encoder EMA

MODEL
blind hollow shaft with stator coupling 36F
blind hollow shaft with torque pin 36G

RESOLUTION
from 1 to 18 bit
please directly contact our offices for other pulses

CODE TYPE
binary B
gray G

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

ELECTRICAL INTERFACE
Serial Synchronous Interface - SSI S

LOGIC
positive P

OPTIONS
to be reported if not used X
reset with external input ZE

BORE DIAMETER
(3/8") mm 9,52
mm 10
diameters 4 / 5 / 6 / 6,35 (1/4") / 8 mm with optional shaft adapter, see Accessories

ENCLOSURE RATING
IP 67 cover side / IP 66 shaft side X

MAX ROTATION SPEED
8000 rpm 8

OUTPUT TYPE
radial cable (standard length 0,5 m) PR
preferred cable lengths 1,5 / 2 / 3 / 5 / 10 m, to be added after OUTPUT TYPE (eg. PDR5)
8 pin M12 radial plug connector M12R

SOCKET
socket not included .162
to be reported only with connector output (eg. M12R.162), for socket see Accessories

VARIANT
custom version XXX

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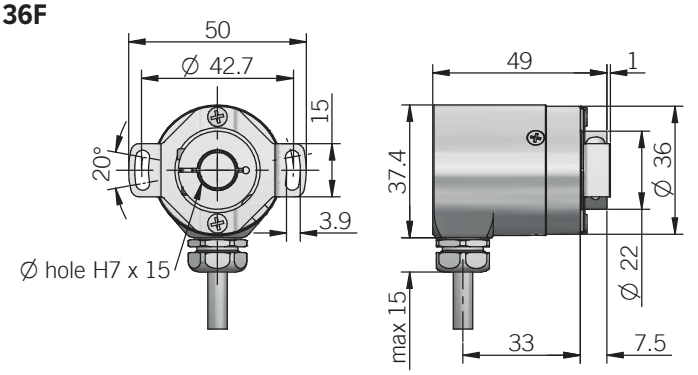
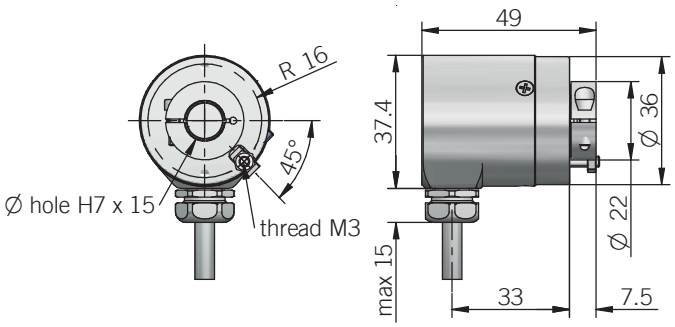
36F



recommended mating shaft tolerance g6
dimensions in mm

36G



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

ELECTRICAL SPECIFICATIONS

Resolution	from 1 to 18 bit
Power supply[1]	5 = 4,75 ... 5,25 V DC 8/30 = 7,6 ... 30 V DC (reverse polarity protection)
Power draw without load	< 0,4 W
Electrical interface[2]	RS-422 (THVD1451 or similar)
Auxiliary inputs (U/D - RESET)	active high (+V DC) connect to 0 V if not used / RESET t_{min} 150 ms
Clock frequency	100 kHz ... 1 MHz
Code type	binary or gray
SSI monostable time (Tm)	20 µs
SSI pause time (Tp)	> 35 µs
SSI frame	left aligned format MSB ... LSB up to 13 bit = length 13 bit 14 to 18 bit = length 18 bit
SSI status and parity bit	on request
Counting direction	decreasing clockwise (shaft view)
Start-up time	150 ms
Accuracy (at +20°C / +68°F)	± 0,20°
Mean time to dangerous failure ($MTTF_d$)[3] according to EN ISO 13849-1	230 years
Mission time (Tm)[3]	20 years
Diagnostic coverage (DC)[3]	0%
Cable type	shielded - fixed installation conductors section 0,14 mm² / AWG 26 bending radius min 60 mm
Electromagnetic compatibility	according to 2014/30/EU directive
RoHS	according to 2011/65/EU directive
UL / CSA	file n. E212495

CONNECTIONS

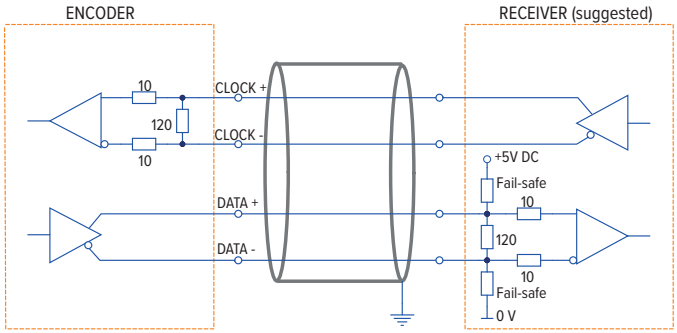
Function	Cable	8 pin M12
+ V DC	red	8
0 V	black	5
DATA +	green	3
DATA -	brown or grey	2
CLOCK +	yellow	4
CLOCK -	orange	6
U / D	red / blue	7
RESET	white	1
⏚	shield	housing

MECHANICAL SPECIFICATIONS

Bore diameter	ø 9,52 (3/8") / 10 mm ø 4* / 5* / 6* / 6,35 (1/4")* / 8* mm * with optional shaft adapter, please refer to Accessories
Enclosure rating	IP 67 cover side / IP 66 shaft side (IEC 60529)
Rotation speed	8000 rpm continuous / 10000 rpm max
Max shaft load[4]	20 N (4,5 lbs) axial / radial
Shock	50 G, 11 ms (IEC 60068-2-27)
Vibration	20 G, 10 ... 2000 Hz (IEC 60068-2-6)
Moment of inertia	0,001 x 10^{-6} kgm² (0,02 x 10^{-6} lbft²)
Starting torque (at +20°C / +68°F)	< 0,01 Nm (1,42 Ozin)
Bearing stage material	aluminum
Shaft material	stainless steel
Housing material	chrome plated steel
Bearings	n.2 ball bearings
Bearings life	10^9 revolutions
Operating temperature[5, 6]	-30° ... +100°C (-22° ... +212°F) -25° ... +85°C (-13° ... +185°F) with M12 connector
Storage temperature[6]	-25° ... +85°C (-13° ... +185°F)
Weight	150 g (5,29 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

SSI ELECTRICAL INTERFACE



M12 connector (8 pin)
M12 A coded
front view

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