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

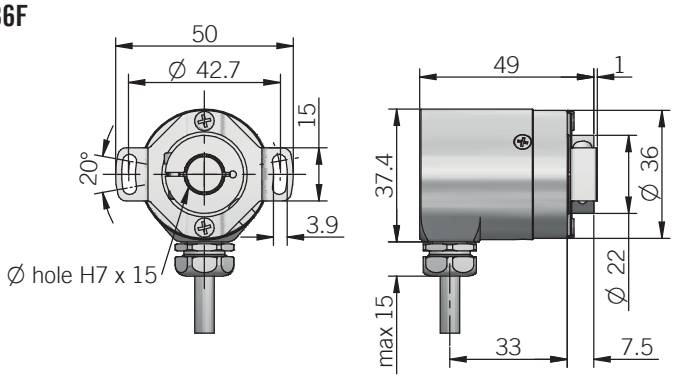
MAX ROTATION SPEED
8000 rpm 8

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

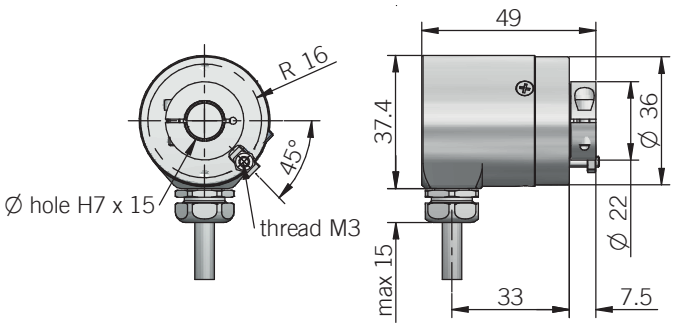
VARIANT
custom version XXX

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

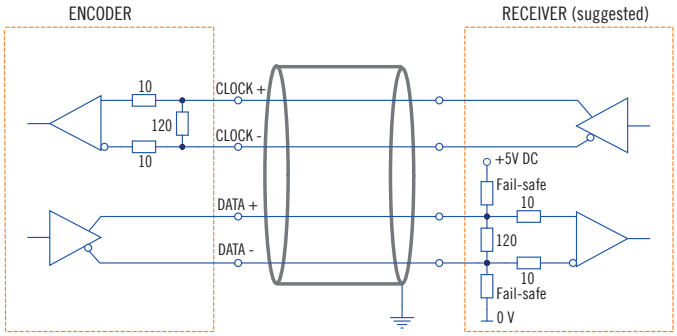
Function	Cable	8 pin M12
+ V DC	red	8
0 V	black	5
DATA +	green	3
DATA -	brown or grey	2
CLOCK +	yellow	4
CLOCK -	orange	6
U / D	red / blue	7
RESET	white	1
⏚	shield	housing

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