EZ63A-B-C-D-E-G
EZ90A - 115A
ABSOLUTE MONOTURN ENCODER
WITH INCREMENTAL
OUTPUT INTERFACE

UNI EN ISO 9001

CE

PRELIMINARY

EZ serie Encoders

The encoders of the EZ series join in one product the advantages of the absolute encoders and of the incremental encoders. They are, fundamentally, absolute encoders with an output interface of the incremental type. The output signals are the classic A, B and Z of the incremental encoder but, this is an absolute encoder as the position inside the turn is maintained even in the case of missing power supply.
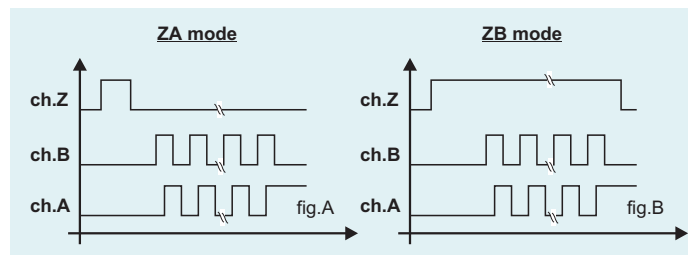
START-UP SEQUENCE

Before working the encoder carries out the following operations:

1) When starting the "microcontroller" the encoder acquires the absolute position

2) In accordance with the operating of the zero-set signal an impulse is sent on the zero channel or the zero channel itself is activate to allow the zero-set of the count on the reading device

3) It is sent a sequence in output on A and B channels of many incremental impulses than is the value position of the absolute encoder

4) The zero channel is deactivated (if previously activated)

5) The controller activates the signals of the incremental encoder and brings them in output on the A, B and Z channels.

6) The reading device (counter, PLC, CNC) stores the value relative to the position, so the system is ready to work as an incremental encoder.

Zero signal operating mode

The "EZ" encoders are available with two zero operating mode during the START UP procedure. In the ZA mode the zero signal is activated and deactivated before the start up of the incremental impulses sequence (see figure A). In the ZB mode the zero signals is activated before the start up of the sequence of the incremental impulses and is deactivated at the end of the same sequence (see figure B).


Chase

The start up procedure of the absolute position as incremental impulses sequence could present some problems if during its execution the encoder is in movement; one would find a difference between the real absolute position and the one actually acquired from the reading device. The encoder recognizes, really, movements any occured during the transmission and it compensates for them by continuously acquiring the new position and sending the necessary impulses to "hook" the real absolute position.

READY output

When the incremental count is perfectly "in phase" with the absolute one, that is when the chase procedure is terminated, it is activated the READY optput which indicates that the encoder is effectively operating; if the encoder is in movement during the starting of the incremental impulses sequence its speed must not exceed a certain value as it would make impossible the "coupler" of the real absolute position. During normal working, instead, eventual deactivations of the output signal malfunctions of the encoder due to problems such as the interruption of the power supply voltage; this means that the READY output has the function of a real output alarm.

RESTART input

The input of RESTART allows at the encoder, when activated at least for 50ms, to do again the complete START UP sequence including the chase function. When the RESTART command is given, obviously the READY output deactivates itself. This input, together with the READY output, is very useful for interfacing with external devices, as it allows the complete control of the encoder working.
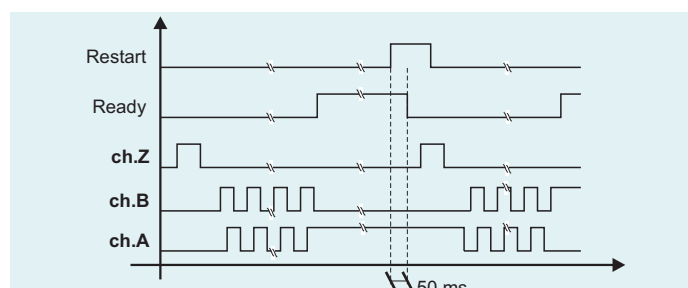
Electronic characteristics

| Resolutions	360 / 500 / 512 / 720 / 900 1000 / 1024 / 1440 / 2000 2048
Power supply	5 ÷ 8 / 24 Vdc
Current consumption without load	150 mA
Max commutable current	30 mA per channel
Electronic output configuration	PUSH PULL / LINE DRIVER
Max output frequency	20 KHz

Optional functions

The "EZ" encoders are equipped with an optional function, that allows the programming of the operating of some outputs. Through the serial connection of RS485 type with a PC (equipped with the RS232-RS485 interface board) it is possible to set the value of the activation position and of the deactivation one for each of the 6 available output and read the position value of the encoder. These programmable outputs are utilized and applied in substitution of proximity and / or exterior sensors
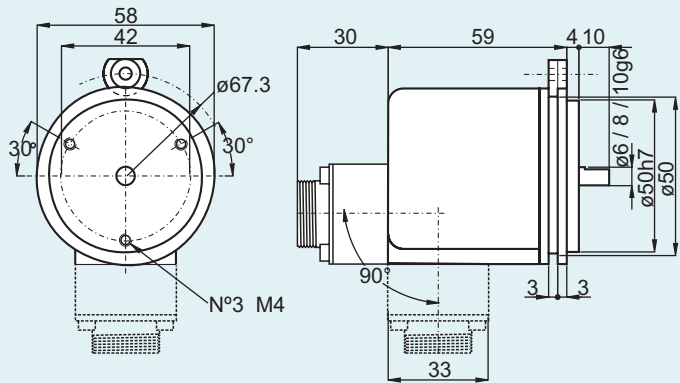
For example:

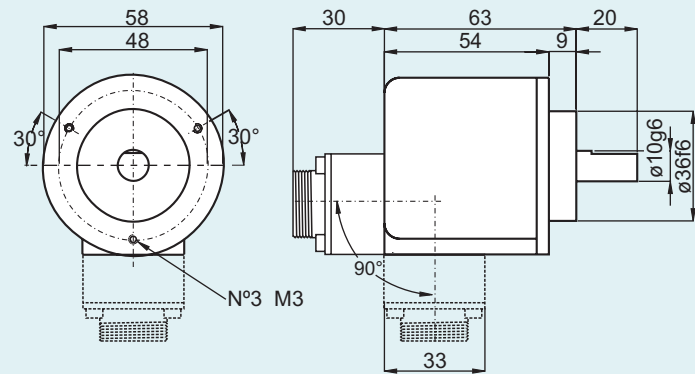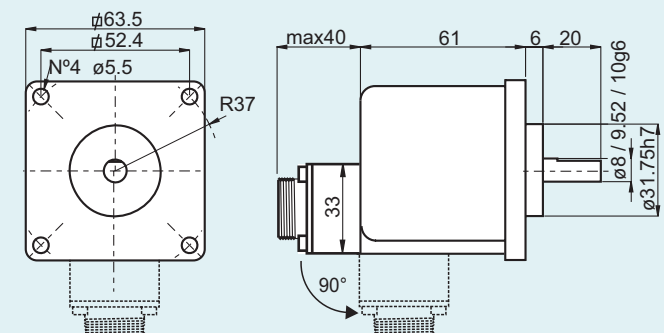| Exit	Activation	Deactivation
Out1	100	300
Out2	500	200
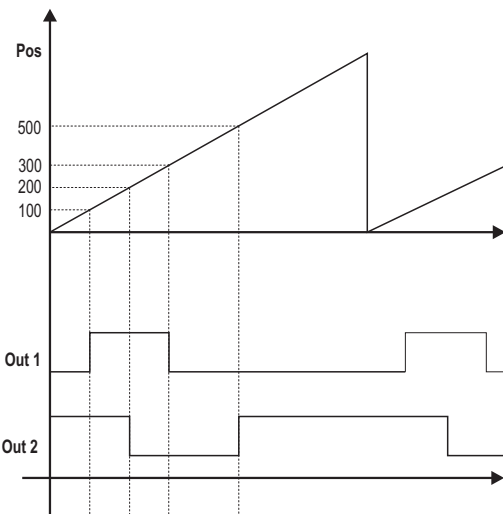
EZ63A
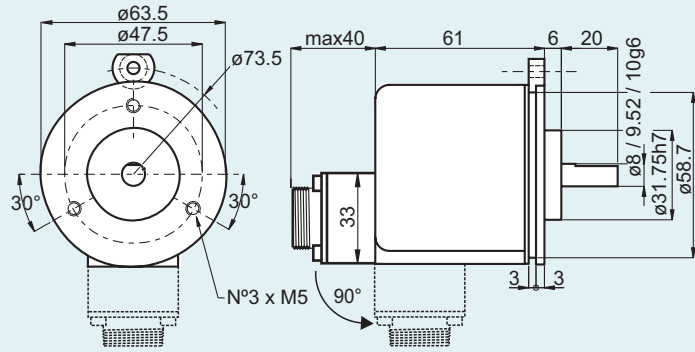
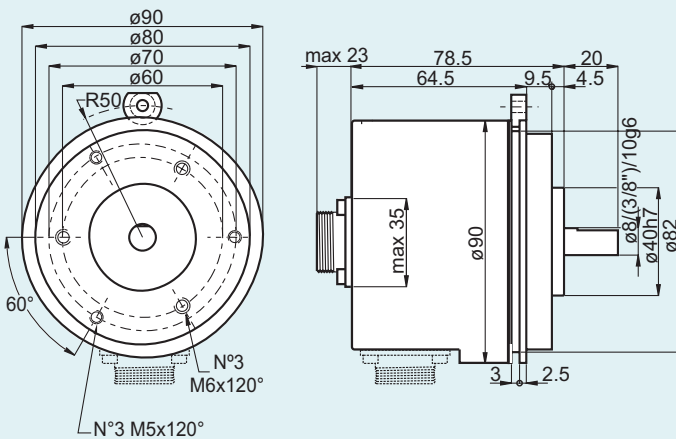

EZ58B

EZ58C

EZ63D

EZ63E
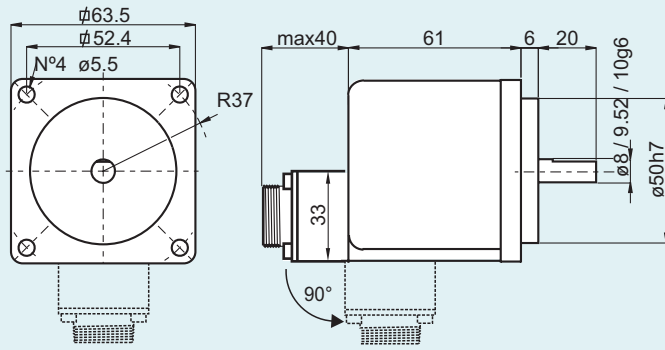
EZ63G
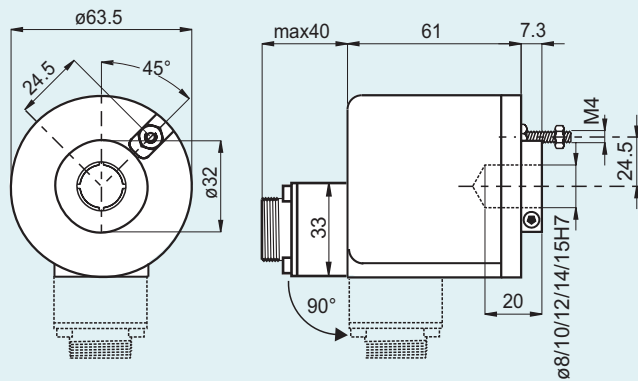
EZ90A

Mechanical Characteristics

Shaft diameter (mm)	ø6 g6 --58B ø8 g6 --58B--63A/D/E--90A ø9.52(3/8") g6 --63A/D/E--90A ø10 g6 --58D/C--63A/D/E--90A
Hole diameter (mm)	ø8 H7 --63G ø10 H7 --63G ø12 H7 --63G ø14 H7 --63G ø15 H7 --63G
R.P.M. Max	6000 continuous 3000 continuous for --63G 3000 with tin axial IP66 / IP67
Max shaft load	10 N (1 Kp) axial with shaft of ø6 20 N (20p) radial with shaft of ø6 200 N (20 Kp) axial 200 N (20Kp) radial
Shock	50 G per 11 msec (with plastic disc) 20 G per 11 msec (with glass disc)
Vibrations	10G 10 ÷ 2000 Hz
Bearings life	10^9 revolutions
Bearings	n°2 ball bearings
Shaft material	Stainless steel AISI303
Body material	Aluminium-UNI 5076 --58-B/C--63A/D/E/G Aluminium UNI 9002/5 --90A
Cover material	--58B/V--63A/D/E/G special plastic reinforced with glass fibre --90A Aluminum (oven painted with epoxic powders at 180°)
Weight	~ 350g--58B/C--63A/D/E/G ~ 750 g --90A
Accessories	Set of 3 servofasteners for mod.lii --63A/B/C--90A Cod.ord.: 94080001

Environmental characteristics

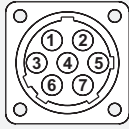|	
Protection	IP54 standard --63G IP64 standard 63A/B/C/D/E--90A IP66 / IP67 optional 63A/B/C/D/E--90A
Operating Temperature	0° ÷ +60°C
Storage Temperature	-25° ÷ +70°C

51

Connections

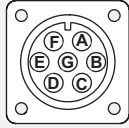### J and M 10 poles connectors

USER SIDE

1 - A — Out 1 (Ch.A)
2 - B — Out 2 (Ch.B)
3 - C — Out 3 (Ch.Z)
4 - D — + Vdc
5 - E — 0 Volt
6 - F — Out 1 (Ch.Ā)
7 - G — Out 2 (Ch.B̄)
8 - H — Out 3 (Ch.Z̄)
9 - I — RESTART
10 - J — READY

J and M 7 poles connectors

USER SIDE

J
1 — A — 0 Volt
2 — B — RESTART
3 — C — Out 1 (Ch.A)
4 — D — Out 3 (Ch.Z)
5 — E — Out 2 (Ch.B)
6 — F — + Vdc
7 — G — READY

M

12 core cable colours

Green — Out 1 (Ch.A)
Yellow — Out 2 (Ch.B)
Blu — Out 3 (Ch.Z)
Red — + Vdc
Black — 0 Volt
Brown — Out 1 (Ch.Ā)
Orange — Out 2 (Ch.B̄)
White — Out 3 (Ch.Z̄)
Gray — READY
Violet — RESTART

Ordering codes

In case of particular Customer variant separate with a full stop

EZ 63 A 6C 1024 ZA 8/24 P 10 X 3 P R . XXX

EZ = Single-turn absolute encoder with incremental output interface

58 = Body dimension
63 = Body dimension
90 = Body dimension

A = mod.EZ63A / 90A
B = mod.EZ58B
C = mod.EZ58C
D = mod.EZ63D
E = mod.EZ63E
G = mod.EZ63G
Type of flange

6C = N°6 programmable outputs

360
500
512
720
900
1000
1024
1440
2000
2048
Resolutions

N.B.:For impulse availabilty contact directly our offices

ZA = see ZA graphic
ZB = see ZB graphic
Working mode of zero-set signal

5
8 ÷ 24
Power supply (Vdc)

XXX = Special Customer variants indicated by a progressive number from 001 to 999

R = radial
A = axial

P = Output cable (standard length 1.5 m)
M = Connector MS3106E 16S-1S o 18-1S
J = Connector JMSP 1607 F o 1610 F

3 = 3000 with IP66 / IP67 and EZ63G
6 = 6000
R.P.M.

X = IP54 for EZ63G
IP64 excluding EZ63G
S = optional IP66 / IP67 excluding EZ63G
Protection

6 = ø 6g6 mm EZ63B
8 = ø 8g6 mm EZ63A / B / D / E
9 = ø 9.52g6 mm EZ63 / EA90
10 = ø 10g6 mm EZ63A / EA90 / EA115
11 = ø 11g6 mm EZ115
Shaft diameters

8 = ø 8H7 mm
10 = ø 10H7 mm
12 = ø 12H7 mm
14 = ø 14H7 mm
15 = ø 15H7 mm
Hole diameter only for mod.63G

P = PUSH PULL
L = LINE DRIVER
Outputs
N.B.: For the optionals on the output configurations see the incremental output connections card

52