



**EA**  
**PARALLEL-SSI-ICO**  
with PA 66 housing  
**SINGLETURN ABSOLUTE**  
**ENCODER**



**Absolute singleturn PARALLEL encoder description**

Resolutions available up to 13 bit and 8.192 ppr. Wide application range thanks to several models and different flange types. This series assures high reliability even in the most tough industrial applications. It is available with cable connector output and protection class up to IP66. Gray and binary code output with several electronics available: NPN, NPN OPEN COLLECTOR, PNP and PUSH PULL. Please refer to the absolute output section.

**Absolute singleturn SSI encoder description**

This series is designed to satisfy the new serial transmission philosophy of data output. A 13 bit word data is the standard output for these encoders. Meaningful bits are proportionally to the chosen encoder resolution. This type of transmission reduces wiring issues in order to maintain outstanding device performances. Only a four wire connection is needed: a pair for the position code and the other one for the clock signal, both transmitted with differential logic. In order to satisfy all dimensional requirements, a wide and complete range of mechanical parts is available.

**Absolute singleturn ICO encoder description**

The only encoder available on the market featuring an absolute output with the simplicity of the incremental one and adding an easy wiring system. Thanks to the integration of a micro-controller, it provides all the advantages of an absolute encoder transmitting the data as an incremental one (A, B) with a transmission frequency between 0 and 10 kHz. As for Parallel and SSI series, a broad selection of mechanical configuration is available in order to assure an easy mounting according to customer requirements.

# PARALLEL encoder ordering code

Full stop to separate special versions

EA 63 A 512 G 8/28 N N L 10 X 6 MA R . XXX

Absolute encoder singleturn **EA**

Body dimension **58**  
Body dimension **63**

**Type of flange**

mod. EA63 **A**  
mod. EA58 **B**  
mod. EA58 **C**  
mod. EA63 **D**  
mod. EA63 **E**  
mod. EA58 / EA63 **F**  
mod. EA63 **G**

**Resolution**

2/4/8/16/32/64/128/256/512  
1024/2048/4096/8192  
90/180/360/720/1440/2880/225/  
450/900/1800/3600  
250/500/1000/2000/4000

*Please directly contact our offices for pulses availability*

**Code type**

Binary **B**  
Gray (Standard) **G**

*Please directly contact our offices for binary offset code (O-XXX).*

**Input voltage**

**5**  
**8 ÷ 28**

**Output types**

NPN (negative logic standard) **N**  
NPN OPEN COLLECTOR (negative logic standard) **C**  
PNP (positive logic standard) **R**  
PNP OPEN COLLECTOR (positive logic standard) **U**  
PUSH PULL with short circuit protection (positive logic standard) **P**

*For optional about output types please refer to the absolute output section*

**Special version code**  
numbered from 001 to 999

**R** Radial  
**A** Axial

**PD** 16 poles with 1,5 m standard output cable  
**PE** 32 poles with 1,5 m standard output cable  
**MA** 19 poles MS type connection

**R.P.M.**

**3** 3000 with IP66  
**6** 6000

**Enclosure rating**

**X** IP54  
**S** Optional IP66 (with the exception of EA63 F/G)

**Shaft diameter**

**6** ø 6g6 mm - 58B  
**8** ø 8g6 mm - 58B - 63A/D/E  
**9** ø 9,52g6 mm - 63A/D/E  
**10** ø 10g6 mm - 58B/C - 63A/D/E

**Bore diameter only for mod. 58F - 63F/G**

**8** ø 8H7 mm  
**9** ø 9,52H7 mm  
**10** ø 10H7mm  
**12** ø 12H7 mm  
**14** ø 14H7 mm  
**15** ø 15H7 mm

**Options**

**L** Latch  
**S** Strobe (only for binary code)  
**X** To be reported if not used

**Logic**

**N** Negative  
**P** Positive

Singleturn ABSOLUTE ENCODERS

## Output connections for absolute singleturn PARALLEL encoder

FUNCTION	B / G	16 WIRE CABLE COLOURS	32 WIRE CABLE COLOURS	PIN M19MP
bit 1 (LSB)	B <sup>0</sup> G <sup>0</sup>	green	green	A
bit 2	B <sup>1</sup> G <sup>1</sup>	yellow	yellow	B
bit 3	B <sup>2</sup> G <sup>2</sup>	blue	blue	C
bit 4	B <sup>3</sup> G <sup>3</sup>	brown	brown	D
bit 5	B <sup>4</sup> G <sup>4</sup>	pink	pink	E
bit 6	B <sup>5</sup> G <sup>5</sup>	white	white	F
bit 7	B <sup>6</sup> G <sup>6</sup>	gray	gray	G
bit 8	B <sup>7</sup> G <sup>7</sup>	violet	violet	H
bit 9	B <sup>8</sup> G <sup>8</sup>	gray/pink	gray/pink	J
bit 10	B <sup>9</sup> G <sup>9</sup>	white/green	white/green	K
bit 11	B <sup>10</sup> G <sup>10</sup>	brown/green	brown/green	L
bit 12	B <sup>11</sup> G <sup>11</sup>	white/yellow	white/yellow	M
bit 13	B <sup>12</sup> G <sup>12</sup>	yellow/brown	yellow/brown	N
/	/	/	/	P
LATCH	/	/	yellow/gray	R
/	/	/	/	S
0 Volt	/	black	black	T
U / D	/	red/blue	red/blue	U
+ Vdc	/	red	red	V

EA PARALLEL-SSI-ICO



# SSI encoder ordering code

Full stop to separate special versions

EA 63 A 512 G 8/28 S X X 10 X 6 MC R . XXX

Absolute encoder singleturn EA

Body dimension 58  
Body dimension 63

### Type of flange

- mod. EA63 A
- mod. EA58 B
- mod. EA58 C
- mod. EA63 D
- mod. EA63 E
- mod. EA58 / EA63 F
- mod. EA63 G

### Resolution

2/4/8/16/32/64/128/256/512  
1024/2048/4096/8192  
90/180/360/720/1440/2880/225/  
450/900/1800/3600  
250/500/1000/2000/4000

Please directly contact our offices for pulses availability

### Code type

- Binary B
  - Gray (Standard) G
- Please directly contact our offices for binary offset code (0-XXX).

### Input voltage

5  
8 ÷ 28

### Output types

SSI (Serial Synchronous Interface) S

Special version code numbered from 001 to 999

R Radial  
A Axial

PC 12 poles with 1,5 m standard output cable  
MC Connector MS type 7 poli  
HA Connector H type 12 poli

### R.P.M.

3 3000 with IP66  
6 6000

### Enclosure rating

X IP54  
S Optional IP66 (with the exception of EA58 F and EA63 F/G)

### Shaft diameter

6 ø 6g6 mm - 58B  
8 ø 8g6 mm - 58B - 63A/D/E  
9 ø 9,52g6 mm - 63A/D/E  
10 ø 10g6 mm - 58B/C - 63A/D/E

### Bore diameter only for mod. 58F - 63F/G

8 ø 8H7 mm  
9 ø 9,52H7 mm  
10 ø 10H7mm  
12 ø 12H7 mm  
14 ø 14H7 mm  
15 ø 15H7 mm

### Options

X To be reported if not used

### Logic

X To be reported if not used

Singleturn ABSOLUTE ENCODERS

EA PARALLEL-SSI-ICO

## Output connections for SSI

FUNCTION	12 WIRE CABLE COLOURS	PIN M07MP	PIN H12
+ Vdc	red	G	8
0 Volt	black	F	1
U/D	red/blue	E	5
Dato +	green	C	2
Dato -	brown	D	10
Clock +	yellow	A	3
Clock -	orange	B	11

# ICO encoder ordering code

Full stop to separate special versions

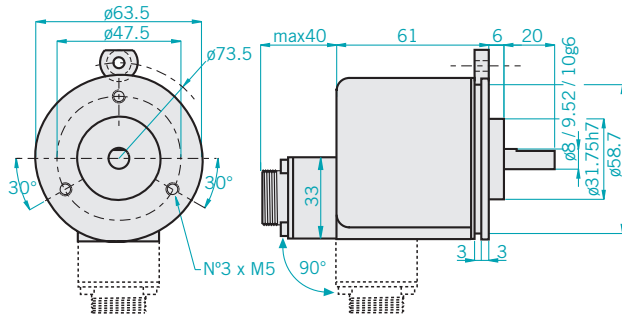
**EA 63 A 512 G 8/28 N N L 10 X 6 MA R . XXX**

<p>Absolute encoder singleturn <b>EA</b></p> <p>Body dimension <b>58</b> Body dimension <b>63</b></p> <p><b>Type of flange</b></p> <p>mod. EA63 <b>A</b> mod. EA58 <b>B</b> mod. EA58 <b>C</b> mod. EA63 <b>D</b> mod. EA63 <b>E</b> mod. EA58 / EA63 <b>F</b> mod. EA63 <b>G</b></p> <p><b>Resolution</b></p> <p><b>360/500/512</b> <b>720/1000/1024</b></p> <p><i>Please directly contact our offices for pulses availability</i></p> <p><b>Code type</b></p> <p>Incremental output code <b>I</b></p> <p><b>Input voltage</b></p> <p><b>5</b> <b>8 ÷ 28</b></p> <p><b>Output types</b></p> <p>LINE DRIVER <b>L</b> PUSH PULL with short circuit protection <b>P</b></p> <p><i>For optional about output types please refer to the absolute output section</i></p>	<p>Special version code numbered from 001 to 999</p> <p><b>R</b> Radial <b>A</b> Axial</p> <p><b>PC</b> 12 poles with 1,5 m standard output cable <b>MA</b> 19 poles MS type connection</p> <p><b>R.P.M.</b></p> <p><b>3</b> 3000 with IP66 <b>6</b> 6000</p> <p><b>Enclosure rating</b></p> <p><b>X</b> IP54 <b>S</b> Optional IP66 with the exception of EA63G</p> <p><b>Shaft diameter</b></p> <p><b>6</b> ø 6g6 mm - 58B <b>8</b> ø 8g6 mm - 58B - 63A/D/E <b>9</b> ø 9,52g6 mm - 63A/D/E <b>10</b> ø 10g6 mm - 58B/C - 63A/D/E</p> <p><b>Bore diameter only for mod. 58F - 63F/G</b></p> <p><b>8</b> ø 8H7 mm <b>9</b> ø 9,52H7 mm <b>10</b> ø 10H7mm <b>12</b> ø 12H7 mm <b>14</b> ø 14H7 mm <b>15</b> ø 15H7 mm</p> <p><b>Options</b></p> <p><b>A</b> 10 KHz (standard) <b>B</b> 1 KHz</p> <p><b>Logic</b></p> <p><b>X</b> To be reported if not used</p>
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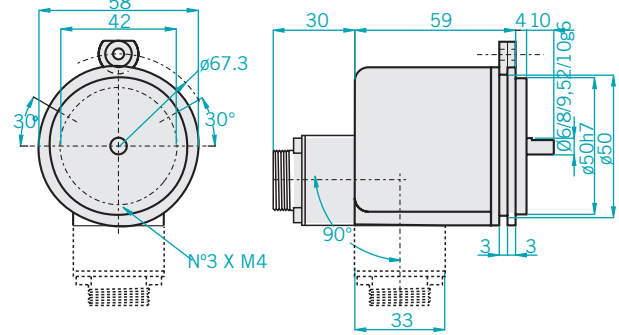
## Output connections for ICO

FUNCTION	12 WIRE CABLE COLOURS	PIN M19MP
+ Vdc	red	V
0 Volt	black	T
U/D	red/blue	U
Ready	gray	G
Restart	violet	H
A	green	A
A-	brown	D
B	yellow	B
B-	pink	E
Z	blue	C
Z-	white	F

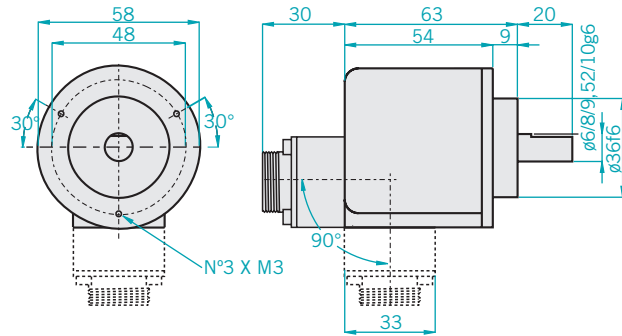
EA63 A



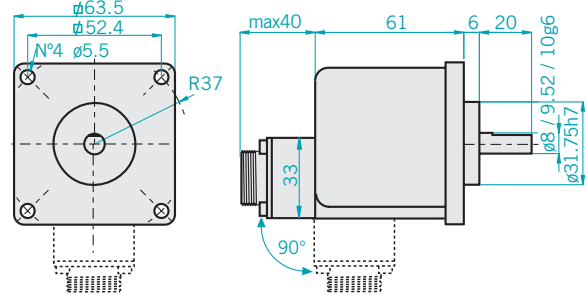
EA58 B



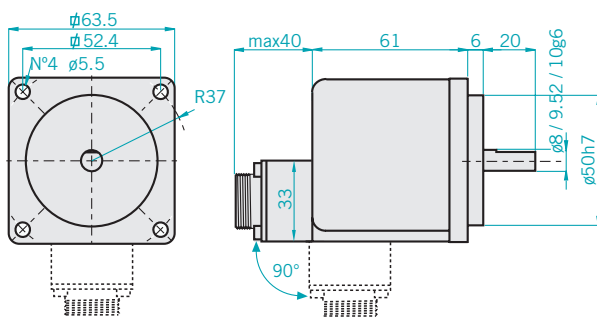
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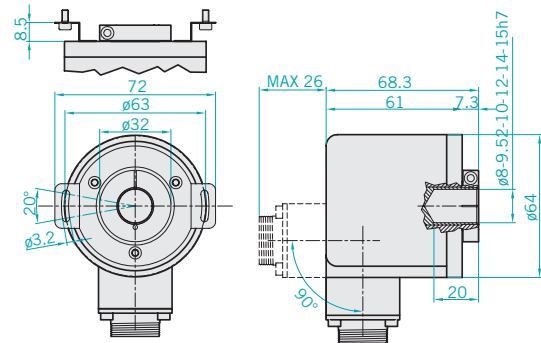
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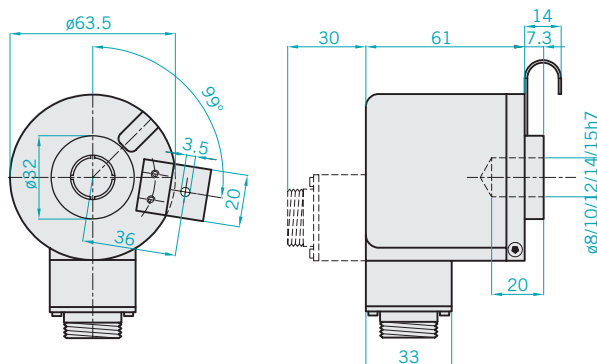
EA63 E



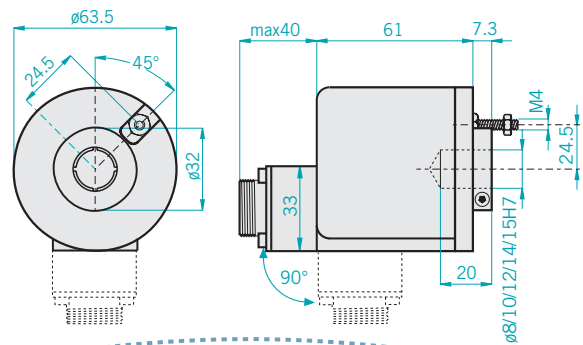
EA58 F

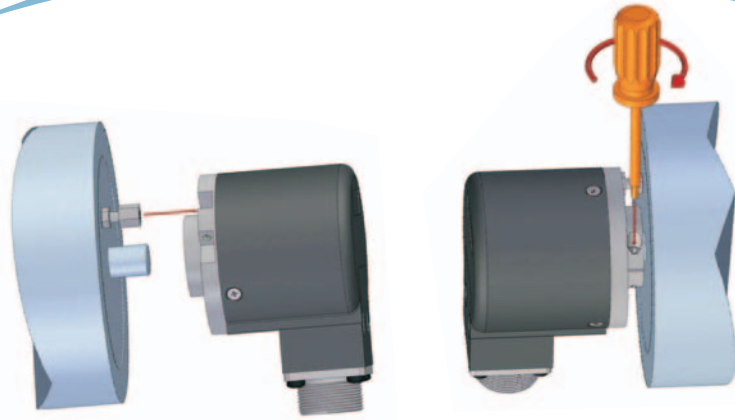


EA63 F



EA63 G



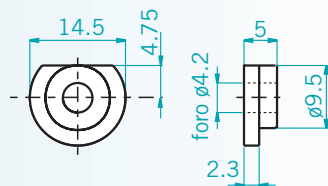


#### HOW TO MOUNT THE EA63G

- 1) Fix the antirotation pin on motor flange.
- 2) Couple the encoder shaft with the motor shaft, ensuring that the pin is inserted on the cave on the frontal part of the encoder (maintaining a minimum distance of 0,5 mm).
- 3) Fix the encoder shaft by the metal ring.

### Mechanical specifications

Shaft diameter (mm)	$\varnothing 6$ g6 - 58B $\varnothing 8$ g6 - 58B - 63A/D/E $\varnothing 9,52$ g6 - 63A/D/E $\varnothing 10$ g6 - 58B - 63A/D/E
Bore diameter (mm)	$\varnothing 8$ H7- 58F - 63F/G $\varnothing 9$ H7- 58F - 63F/G $\varnothing 10$ H7- 58F - 63F/G $\varnothing 12$ H7- 58F - 63F/G $\varnothing 14$ H7- 58F - 63F/G $\varnothing 15$ H7- 58F - 63F/G
R.P.M. Max	6000 continuous 3000 continuous for 63G 3000 with IP66
MAX shaft load	10 N (1 Kp) axial with $\varnothing 6$ shaft 20 N (2 Kp) radial with $\varnothing 6$ shaft 100 N (10 Kp) axial 100 N (10 Kp) radial
Shock	50 G for 11 msec
Vibrations	10G 10 ÷ 2000 Hz
Bearings life	10 <sup>9</sup> revolutions
Bearings	n° 2 ball bearings
Shaft material	Stainless steel AISI303
Body material	Aluminium UNI 5076
Housing material	PA 66 reinforced with fiber glass
Enclosure rating	IP54 IP66 optional - 58B/C - 63A/D/E
Operating temperature	0° ÷ +60°C
Storage temperature	-15° ÷ +70°C
Weight	350 g
Accessories	set N° 3 fastners for models -63A/B/C Ord.Cod.: 94080001



### PARALLEL electrical specifications

Resolution	2 / 4 / 8 / 16 / 32 / 64 / 128 / 256 512 / 1024 / 2048 / 4096 / 8192 90 / 180 / 360 / 720 / 1440 / 2880 225 / 450 / 900 / 1800 / 3600 250 / 500 / 1000 / 2000 / 4000
Input voltage	5Vdc / 8 ÷ 28 Vdc
Input current with no output load	200 mA
Source and sink current	40 mA for channel
Output types	NPN (Negative logic) NPN Open Collector (Negative logic) PNP (Positive logic) PNP Open Collector (Positive logic) PUSH PULL (Positive logic)
Output frequency	100 KHz output code $F = \frac{RPM \times Resolution}{60}$

### SSI electrical specifications

Resolution	2 / 4 / 8 / 16 / 32 / 64 / 128 / 256 512 / 1024 / 2048 / 4096 / 8192 90 / 180 / 360 / 720 / 1440 / 2880 225 / 450 / 900 / 1800 / 3600 250 / 500 / 1000 / 2000 / 4000
Input voltage	5Vdc / 8 ÷ 28 Vdc
Input current with no output load	200 mA
Source and sink current	40 mA for channel
Output types	SSI (Serial Synchronous Interface)
Monostable time	10 - 25 us
Time between two clock sequences	> 35 us
Frequency range	100 KHz - 1 MHz

### ICO electrical specifications

Resolution	360 / 500 / 512 / 720 / 1000 / 1024
Input voltage	5Vdc / 8 ÷ 28 Vdc
Input current with no output load	200 mA
Source and sink current	40 mA for channel con PUSH PULL 20 mA for channel con LINE DRIVER
Output types	LINE DRIVER - PUSH PULL
Output frequency	100 KHz output code $F = \frac{RPM \times Resolution}{60}$
Transmission frequency	100 KHz - 1 MHz