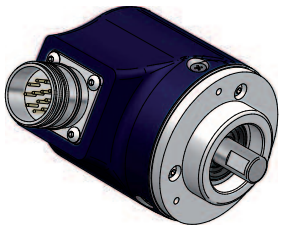
EAMH 58 B / C - 63 A / D / E
BIT PARALLEL - SSI
SOLID SHAFT MULTITURN ABSOLUTE ENCODER

MAIN FEATURES

Industry standard multiturn absolute encoder for factory automation applications.

- Optical sensor technology (OptoASIC + Energy Harvesting)
- Resolution up to 48 bit (18 bit single turn + 30 bit multiturn)
- Power supply up to +30 VDC with Bit Parallel or SSI as electronic interface
- Cable or connector output
- Solid shaft diameter up to 10 mm
- Mounting by synchronous, clamping or centering 2,5" square flange



ORDERING CODE BIT PARALLEL

EAMH	63A	12 / 12	G	8/30	P	P	X	10	X	PE	R	.XXX

SERIES
multiturn absolute encoder EAMH

MODEL
synchronous flange ø 31.75 mm 63A
synchronous flange ø 50 mm 58B
clamping flange ø 36 mm 58C
centering square flange ø 31.75 mm 63D
centering square flange ø 50 mm 63E

MULTITURN RESOLUTION
bit from 1 to 13

SINGLETURN RESOLUTION
bit from 1 to 13
total resolution (multiturn+singleturn) max 24 bit

CODE TYPE
binary B
gray G

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

ELECTRONIC INTERFACE
push-pull P

LOGIC
negative N
positive P

OPTIONS
to be reported if not used X
latch L
reset ZE
latch / reset LZE

SHAFT DIAMETER
(mod. 58 B) mm 6
(mod. 63 A / D) (9,52mm 3/8") mm 9
(mod. 58 C - 63 A / D / E) mm 10

ENCLOSURE RATING
IP 65 shaft side / IP67 cover side X
IP 67 S

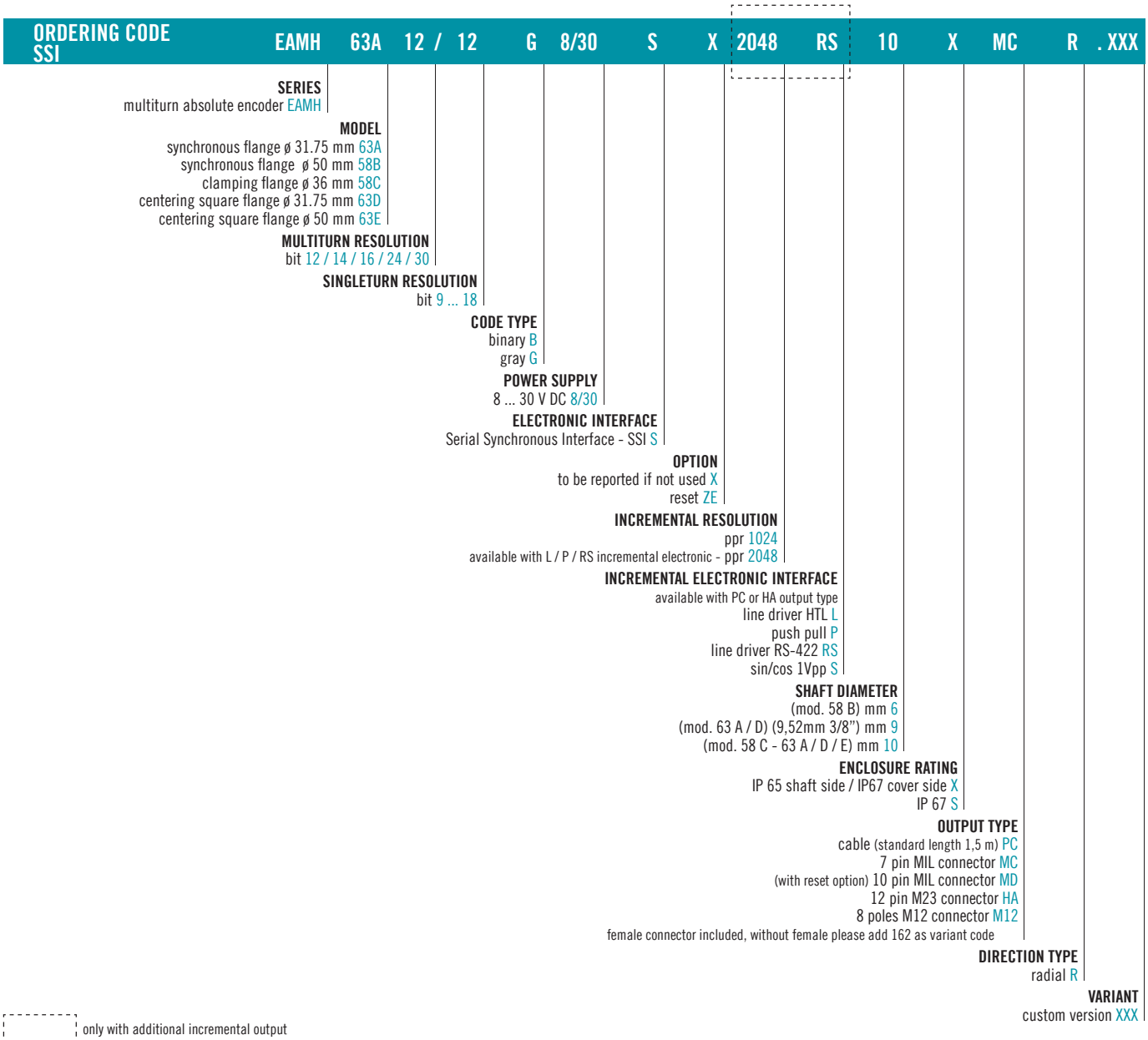
OUTPUT TYPE
(up to 13 bit as total resolution) 16 cores cable (standard length 1,5 m) PD
(from 14 to 24 bit as total resolution or with latch option) 32 cores cable (standard length 1,5 m) PE
(up to 13 bit as total resolution) 19 pin MIL connector MA
(from 14 to 24 bit as total resolution) 32 pin MIL connector ME
female connector included, without female please add 162 as variant code

DIRECTION TYPE
radial R

VARIANT
custom version XXX

PRELIMINARY

1985 - 2015
eltra@eltra.it | www.eltra.it



only with additional incremental output

PRELIMINARY

1985 - 2015
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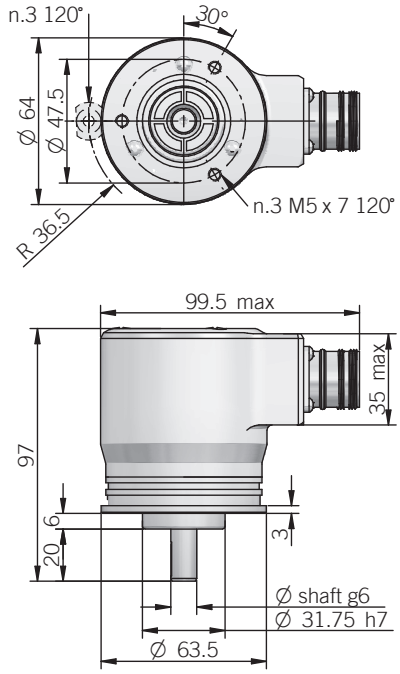
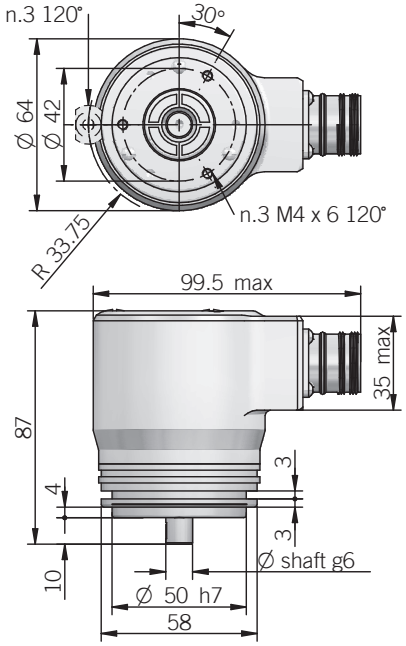
EAMH 63 A

fixing clamps not included

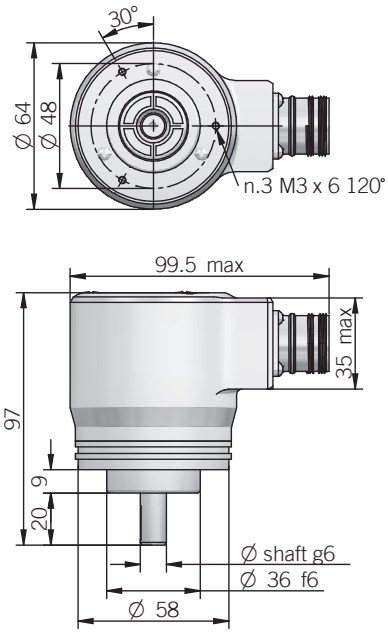


EAMH 58 B

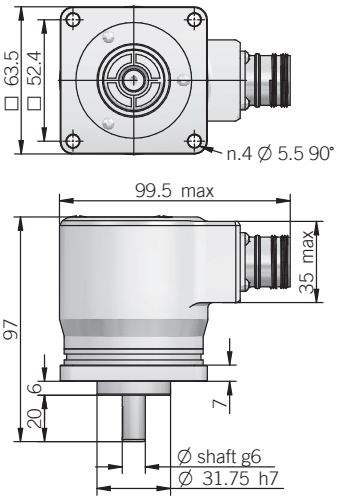
fixing clamps not included



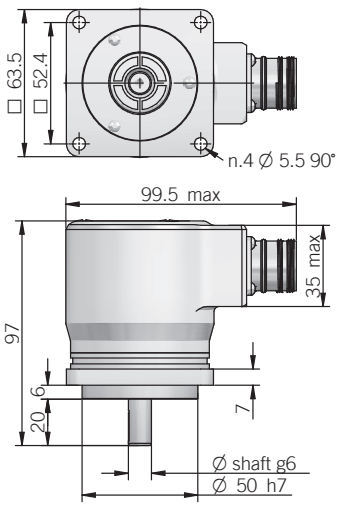
EAMH 58 C



EAMH 63 D



EAMH 63 E



dimensions in mm

PRELIMINARY

eltra@eltra.it | www.eltra.it

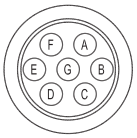
BIT PARALLEL CONNECTIONS

Function	Binary / Gray	Cable output PD	Cable output PE	19 pin MA connector	32 pin ME connector
bit 1 (LSB)	B^0 / G^0	green	green	A	A
bit 2	B^1 / G^1	yellow	yellow	B	B
bit 3	B^2 / G^2	blue	blue	C	C
bit 4	B^3 / G^3	brown	brown	D	D
bit 5	B^4 / G^4	orange or pink	orange or pink	E	E
bit 6	B^5 / G^5	white	white	F	F
bit 7	B^6 / G^6	grey	grey	G	G
bit 8	B^7 / G^7	purple	purple	H	H
bit 9	B^8 / G^8	grey / pink	grey / pink	J	J
bit 10	B^9 / G^9	white / green	white / green	K	K
bit 11	B^{10} / G^{10}	brown / green	brown / green	L	L
bit 12	B^{11} / G^{11}	white / yellow	white / yellow	M	M
bit 13	B^{12} / G^{12}	yellow / brown	yellow / brown	N	N
bit 14	B^{13} / G^{13}	/	white / grey	/	P
bit 15	B^{14} / G^{14}	/	grey / brown	/	R
bit 16	B^{15} / G^{15}	/	white / pink	/	S
bit 17	B^{16} / G^{16}	/	pink / brown	/	T
bit 18	B^{17} / G^{17}	/	white / blue	/	U
bit 19	B^{18} / G^{18}	/	brown / blue	/	V
bit 20	B^{19} / G^{19}	/	white / red	/	W
bit 21	B^{20} / G^{20}	/	brown / red	/	X
bit 22	B^{21} / G^{21}	/	white / black	/	Y
bit 23	B^{22} / G^{22}	/	brown / black	/	Z
bit 24	B^{23} / G^{23}	/	grey / green	/	a
LATCH	/	/	yellow / grey	R	e
0 Volt	/	black	black	T	j
U / D	/	red / blue	red / blue	U	g
RESET	/	/	pink / green	P	f
+ Vdc	/	red	red	V	h
⏚	/	shield	shield	S	housing

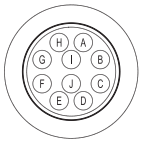
SSI CONNECTIONS

Function	Cable output PC	7 pin MC	10 pin MD	12 pin HA M23 CCW connector	12 pin HA M23 CCW connector	8 pin M12
+ Vdc	red	G	G	8	8	8
0 Volt	black	F	F	1	1	5
data +	green	C	C	2	2	3
data -	brown	D	D	10	10	2
clock +	yellow	A	A	3	3	4
clock -	orange or pink	B	B	11	11	6
A+ / Sin+	grey	/	/	/	6	/
A- / Sin-	blue	/	/	/	7	/
B+ / Cos+	purple	/	/	/	9	/
B- / Cos-	white / green	/	/	/	12	/
U / D	red / blue	E	E	5	5	7
RESET	white	/	H	4	4	1
⏚	shield	housing	housing	9	housing	housing

MC connector (7 pin)
Amphenol MS3102-E-16-S
solder side view FV

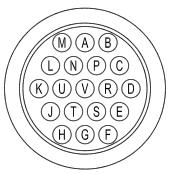


MD connector (10 pin)
Amphenol MS3102-E-18-1P
solder side view FV



HA connector (12 pin)
M23 CCW Hummel
7.410.000000 - 7.002.912.603
solder side view FV

MA connector (19 pin)
Amphenol 62IN 12E 14-19 P
solder side view FV



ME connector (32 pin)
Glenair IPT 02 A 18-32 P F6
solder side view FV

M12 connector (8 pin)
M12 A coded
solder side view FV

PRELIMINARY

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ELECTRICAL SPECIFICATIONS

Multiturn resolution	12 / 14 / 16 / 24 / 30 bit
Singleturn resolution	from 9 to 18 bit
Power supply	+7,6 ... +30 V DC (reverse polarity protection)
Power draw without load	< 1 W
Max load current	20 mA / channel
Output type	P = push pull (active short circuit protection)* S = RS-422
Incremental A / B electronic interface	L = HTL differential (active short circuit protection)* P = Push-Pull (active short circuit protection)* RS = RS-422
Incremental Sin / Cos electronic interface	amplitude 1 Vpp ± 10% - Offset 2,5V DC ± 20%
Max incremental output frequency	300 kHz
Auxiliary inputs (U/D - Reset - Latch)	active high (+Vdc) connect to 0V if not used / Reset - Latch t_{min} 150 ms
Max frequency	50 kHz LSB (Bit Parallel) clock input: 100 kHz ... 1 MHz (SSI)
Code type	binary or gray
Logic	SSI = positive Bit parallel = positive or negative
SSI monostable time (Tm)	20 µs
SSI pause time (Tp)	> 35 µs
SSI frame	tree format (MSB ... LSB) up to 12 bit multiturn = length 25 bit (12MT + 13ST) 13 to 14 bit multiturn = length 27 bit (14MT + 13ST) up to 16 bit multiturn = lenght 32 bit (16MT + 16ST)
Data refresh rate	TBD
SSI status and parity bit	on request
Counting direction	decreasing clockwise (shaft view)
Start-up time	150 ms
Accuracy	± TBD
Electromagnetic compatibility	according to 2004/108/EC directive

*output levels according to power supply, for further details please see under Technical basics section

BIT PARALLEL CONNECTOR OR CABLE CHOICE

According to the resolution and the chosen number of turns is possible to calculate the connections required by the connector or the cable.
See below examples:

EXAMPLE 1
Singleturn = 8 bit = 8 connections
Multiturn = 5 bit = 5 connections
Total connections 13

EXAMPLE 2
Singleturn = 12 bit = 12 connections
Multiturn = 12 bit = 12 connections
Total connections 24

From 1 to 13 connections a 16 cores cable (PD) or a 19 pin connector (MA) have to be considered.

From 14 to 24 connections a 32 cores cable (PE) or a 32 pin connector (ME) have to be considered.

With LATCH option a 32 cores cable or a 32 pin connector is required; RESET option is available with PE 32 cores cable output or 19 pin (MA) / 32 pin (ME) connector.

MECHANICAL SPECIFICATIONS

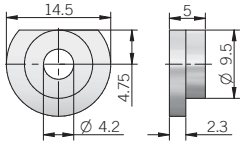
Shaft diameter	ø 6 / 9,52 (3/8") / 10 mm
Enclosure rating IEC 60529	X = IP 65 shaft side / IP67 cover side S = IP 67
Max rotation speed	according to operating temperature / speed
Max shaft load	80 N radial / 40 N axial (TBD)
Shock	50 G, 11 ms (IEC 60068-2-27)
Vibration	10 G, 10 ... 2000 Hz (IEC 60068-2-6)
Moment of inertia	1,5 x 10^{-6} kgm^2
Starting torque (at +20°C / +68°F)	< 0,02 Nm (IP 65) < 0,06 Nm (IP 67)
Body material	EN-AW 2011 aluminum
Shaft material	1.4305 / AISI 303 stainless steel
Housing material	painted aluminium / mild steel
Bearings	2 ball bearings
Bearings life	10^9 revolutions
Operating temperature Bit parallel	-20° ... +85°C (-4 ... +185°F)
Operating temperature SSI	-40° ... +100°C (-40° ... +212°F) -20° ... +100°C (-4 ... +212°F) with cable output -30° ... +85°C (-22 ... +185°F) with M12 connector
Storage temperature	-20° ... +85°C (-4 ... +185°F)
Weight	approx 350 g (12,35 oz)

ROTATION SPEED DERATING TABLE

	Temperature °C (°F)	Max speed (rpm)	Max continuous speed (rpm)
IP65	up to +70 (+158)	10000	8000
	+70 ... +85 (+158 ... +185)	8000	5000
	+85 ... +100 (+185 ... 212)	5000	3000
IP67	up to +70 (+158)	8000	6000
	+70 ... +85 (+158 ... +185)	6000	4000
	+85 ... +100 (+185 ... 212)	TBD	TBD

ACCESSORIES

set n.3 fixing clamps for model 58 B - 63 A
P/N 94080001



PRELIMINARY