

# EAM 58 B / C - 63 A / D / E

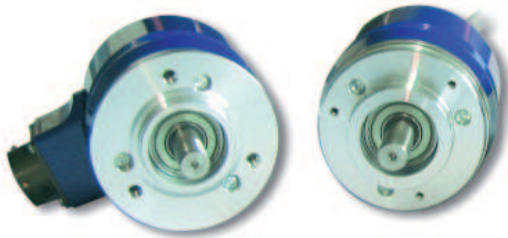
## BIT PARALLEL - SSI

### SOLID SHAFT MULTITURN ABSOLUTE ENCODER

## Specifications

Industry standard multiturn absolute encoder for factory automation applications.

- Optical sensor technology (OptoASIC + gears)
- Resolution up to 27 bit (13 bit single turn (8192 ppr) + 14 bit multiturn (16384 turns))
- Power supply up to +28 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



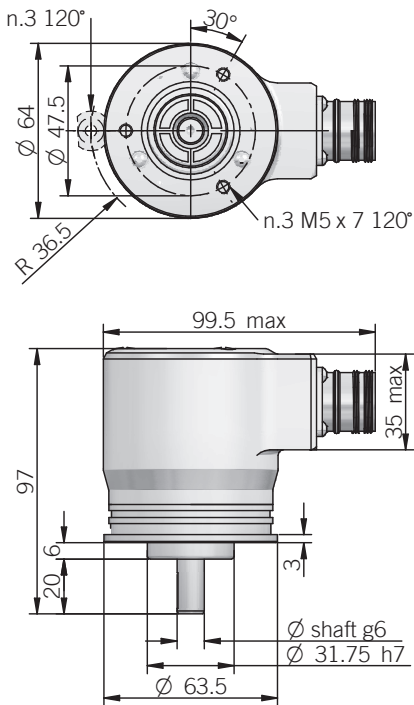
ORDERING CODE	EAM	63A	R	512 / 512	G	8/28	P	P	X	10	X	6	PE	R	.XXX
<b>BIT PARALLEL</b>															
<b>SERIES</b> multiturn absolute encoder	EAM														
<b>MODEL</b> synchronous flange ø 31.75 mm synchronous flange ø 50 mm clamping flange ø 36 mm centering square flange ø 31.75 mm centering square flange ø 50 mm		63A 58B 58C 63D 63E													
			rev. 2.0												
<b>MULTITURN RESOLUTION</b> (powers of 2) turns from				2 to 16384											
<b>SINGLETURN RESOLUTION</b> (powers of 2) ppr from				2 to 8192											
<b>CODE TYPE</b> binary gray					B G										
<b>POWER SUPPLY</b> 8 ... 28 V DC						8/28									
<b>ELECTRONIC INTERFACE</b> push-pull							P								
<b>LOGIC</b> negative positive								N P							
<b>OPTIONS</b> latch to be reported if not used									L X						
<b>SHAFT DIAMETER</b> (mod. 58 B) mm (mod. 63 A / D) (9,52mm 3/8") mm (mod. 58 C - 63 A / D / E) mm										6 9 10					
<b>ENCLOSURE RATING</b> IP 54 IP 66										X S					
<b>MAX ROTATION SPEED</b> (IP 66) 3000 rpm (IP 54) 6000 rpm											3 6				
<b>OUTPUT TYPE</b> (up to 13 bit as total resolution) 16 cores cable (standard length 1,5 m) (from 14 to 27 bit as total resolution or with latch option) 32 cores cable (standard length 1,5 m) (up to 13 bit as total resolution) 19 pin MIL connector (from 14 to 27 bit as total resolution) 32 pin MIL connector female connector included, without female please add 162 as variant code															
<b>DIRECTION TYPE</b> axial radial															
<b>VARIANT</b> custom version															XXX

**ORDERING CODE**  
**SSI**    **EAM**    **63A**    **R**    **512 / 512**    **G**    **8/28**    **S**    **X**    **X**    **10**    **X**    **3**    **MC**    **R**    **.XXX**

<b>SERIES</b> multiturn absolute encoder <b>EAM</b>																	
<b>MODEL</b> synchronous flange ø 31.75 mm <b>63A</b> synchronous flange ø 50 mm <b>58B</b> clamping flange ø 36 mm <b>58C</b> centering square flange ø 31.75 mm <b>63D</b> centering square flange ø 50 mm <b>63E</b>																	
rev. 2.0 <b>R</b>																	
<b>MULTITURN RESOLUTION</b> (powers of 2) turns from 2 to 16384																	
<b>SINGLETURN RESOLUTION</b> (powers of 2) ppr from 2 to 8192																	
<b>CODE TYPE</b> binary <b>B</b> gray <b>G</b>																	
<b>POWER SUPPLY</b> 8 ... 28 V DC <b>8/28</b>																	
<b>ELECTRONIC INTERFACE</b> Serial Synchronous Interface - SSI <b>S</b>																	
<b>LOGIC</b> to be reported <b>X</b>																	
<b>OPTIONS</b> to be reported <b>X</b>																	
<b>SHAFT DIAMETER</b> (mod. 58 B) mm <b>6</b> (mod. 63 A / D) (9,52mm 3/8") mm <b>9</b> (mod. 58 C - 63 A / D / E) mm <b>10</b>																	
<b>ENCLOSURE RATING</b> IP 54 <b>X</b> IP 66 <b>S</b>																	
<b>MAX ROTATION SPEED</b> (IP 66) 3000 rpm <b>3</b> (IP 54) 6000 rpm <b>6</b>																	
<b>OUTPUT TYPE</b> cable (standard length 1,5 m) <b>PC</b> 7 pin MIL connector <b>MC</b> 12 pin M23 connector <b>HA</b> 8 poles M12 connector <b>M12</b> <i>female connector included, without female please add 162 as variant code</i>																	
<b>DIRECTION TYPE</b> axial <b>A</b> radial <b>R</b>																	
<b>VARIANT</b> custom version <b>XXX</b>																	

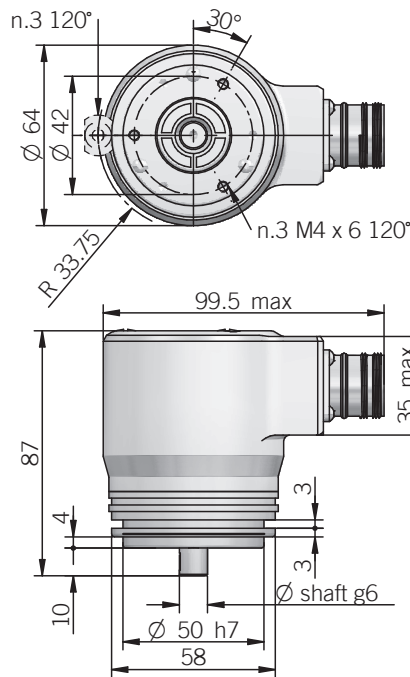
### EAM 63 A

fixing clamps not included

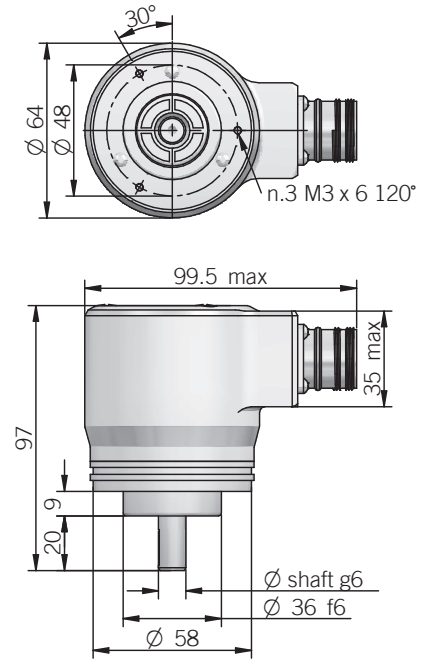


### EAM 58 B

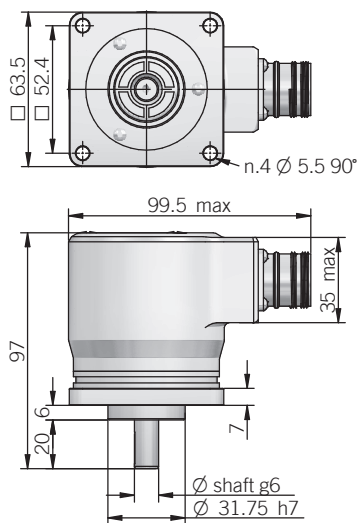
fixing clamps not included



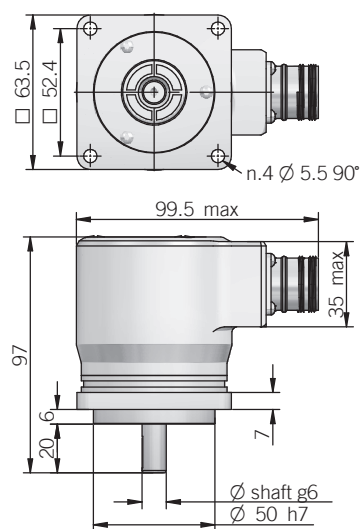
### EAM 58 C



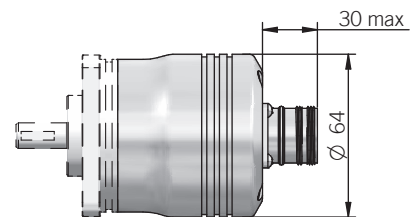
### EAM 63 D



### EAM 63 E



### Dimensions with axial output



## BIT PARALLEL CONNECTIONS

Function	Binary / Gray	Cable output PD	Cable output PE	19 pin MA connector	32 pin ME connector
bit 1 (LSB)	B <sup>0</sup> / G <sup>0</sup>	green	green	A	A
bit 2	B <sup>1</sup> / G <sup>1</sup>	yellow	yellow	B	B
bit 3	B <sup>2</sup> / G <sup>2</sup>	blue	blue	C	C
bit 4	B <sup>3</sup> / G <sup>3</sup>	brown	brown	D	D
bit 5	B <sup>4</sup> / G <sup>4</sup>	orange or pink	orange or pink	E	E
bit 6	B <sup>5</sup> / G <sup>5</sup>	white	white	F	F
bit 7	B <sup>6</sup> / G <sup>6</sup>	grey	grey	G	G
bit 8	B <sup>7</sup> / G <sup>7</sup>	purple	purple	H	H
bit 9	B <sup>8</sup> / G <sup>8</sup>	grey / pink	grey / pink	J	J
bit 10	B <sup>9</sup> / G <sup>9</sup>	white / green	white / green	K	K
bit 11	B <sup>10</sup> / G <sup>10</sup>	brown / green	brown / green	L	L
bit 12	B <sup>11</sup> / G <sup>11</sup>	white / yellow	white / yellow	M	M
bit 13	B <sup>12</sup> / G <sup>12</sup>	yellow / brown	yellow / brown	N	N
bit 14	B <sup>13</sup> / G <sup>13</sup>	/	white / grey	/	P
bit 15	B <sup>14</sup> / G <sup>14</sup>	/	grey / brown	/	R
bit 16	B <sup>15</sup> / G <sup>15</sup>	/	white / pink	/	S
bit 17	B <sup>16</sup> / G <sup>16</sup>	/	pink / brown	/	T
bit 18	B <sup>17</sup> / G <sup>17</sup>	/	white / blue	/	U
bit 19	B <sup>18</sup> / G <sup>18</sup>	/	brown / blue	/	V
bit 20	B <sup>19</sup> / G <sup>19</sup>	/	white / red	/	W
bit 21	B <sup>20</sup> / G <sup>20</sup>	/	brown / red	/	X
bit 22	B <sup>21</sup> / G <sup>21</sup>	/	white / black	/	Y
bit 23	B <sup>22</sup> / G <sup>22</sup>	/	brown / black	/	Z
bit 24	B <sup>23</sup> / G <sup>23</sup>	/	grey / green	/	a
bit 25	B <sup>24</sup> / G <sup>24</sup>	/	yellow / pink	/	b
bit 26	B <sup>25</sup> / G <sup>25</sup>	/	yellow / blue	/	c
bit 27	B <sup>26</sup> / G <sup>26</sup>	/	green / blue	/	d
LATCH	/	yellow / grey	yellow / grey	R	e
0 Volt	/	black	black	T	j
U / D	/	red / blue	red / blue	U	g
+ Vdc	/	red	red	V	h
⏏	/	shield	shield	S	housing

## 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. From the below table is possible to know the connection number.

EXAMPLE 1:  
256 PPR = 8 connections  
N° turns 32 = 5 connections  
Total connections 13.

EXAMPLE 2:  
4096 PPR = 12 connections  
N° turns 4096 = 12 connections  
Total connections 24.

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

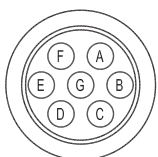
From 14 to 27 connections a 32 cores cable (PE) or a 32 cores connector (ME) have to be considered.

If LATCH is used a cable or a 32 poles connector is required.

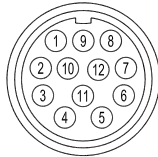
## SSI CONNECTIONS

Function	Cable output PC	7 pin MC	12 pin HA	8 pin M12
+ Vdc	red	G	8	8
0 Volt	black	F	1	5
data +	green	C	2	3
data -	brown	D	10	2
clock +	yellow	A	3	4
clock -	orange or pink	B	11	6
U / D	red / blue	E	5	7
⏏	shield	housing	9	housing

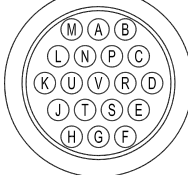
MC connector (7 pin)  
Amphenol MS3102-E-16-S  
solder side view FV



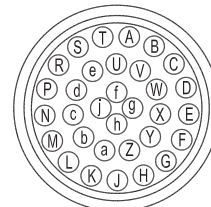
HA connector (12 pin) - M23 CCW  
Hummel 7.410.000000 -  
7.002.912.603  
solder side view FV



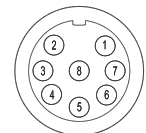
MA connector (19 pin)  
Amphenol 62IN 12E 14-19 P  
solder side view FV



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



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



### ELECTRICAL SPECIFICATIONS

<b>Multiturn resolution</b>	from 2 to 16384 turns
<b>Singleturn resolution</b>	from 2 to 8192 ppr
<b>Power supply</b>	8/28 = 7,6 ... 29,4 V DC
<b>Current consumption without load</b>	100 mA
<b>Max load current</b>	20 mA / channel
<b>Output type</b>	P = push pull (active short circuit protection)* S = RS-422
<b>Auxiliary inputs (U/D - Latch)</b>	active high (+Vdc) <i>connect to 0V if not used</i>
<b>Max frequency</b>	output: 25 kHz LSB (Bit Parallel ) clock input: 100 kHz ... 1 MHz (SSI)
<b>SSI monostable time (Tm)</b>	18 µs
<b>SSI pause time (Tp)</b>	> 35 µs
<b>Accuracy</b>	± 1/2 LSB
<b>SSI frame</b>	Tree format (MSB ... LSB) up to 12 bit multiturn = lenght 25 bit (12MT + 13ST) 13 to 14 bit multiturn = lenght 27 bit (14MT + 13ST)
<b>Counting direction</b>	decreasing clockwise (shaft view)
<b>Start-up time</b>	150 ms
<b>Electromagnetic compatibility</b>	IEC 61000-6-2 IEC 61000-6-4

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

### MECHANICAL SPECIFICATIONS

<b>Shaft diameter</b>	ø 6 / 9,52 (3/8") / 10 mm
<b>Enclosure rating</b>	X = IP 54 (IEC 60529) S = IP 66 (IEC 60529)
<b>Max rotation speed</b>	3000 rpm (IP 66) 6000 rpm (IP 54)
<b>Max shaft load</b>	10 N axial / 20 N radial with ø6 shaft 100 N axial / radial
<b>Shock</b>	50 G, 11 ms (IEC 60068-2-27)
<b>Vibration</b>	10 G, 10 ... 2000 Hz (IEC 60068-2-6)
<b>Moment of inertia</b>	1,5 x 10 <sup>-6</sup> kgm <sup>2</sup>
<b>Starting torque</b>	< 0,02 Nm (IP 54) < 0,06 Nm (IP 66)
<b>Body material</b>	EN-AW 2011 aluminum
<b>Shaft material</b>	1.4305 / AISI 303 stainless steel
<b>Housing material</b>	painted aluminium
<b>Bearings</b>	2 ball bearings
<b>Bearings life</b>	10 <sup>9</sup> revolutions
<b>Operating temperature</b>	0° ... +60°C (+32° ... +140°F)
<b>Storage temperature</b>	-15° ... +70°C (+5° ... +158°F)
<b>Weight</b>	500 g (17,64 oz)

### ACCESSORIES

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

