

MAIN FEATURES

Industry standard singleturn absolute encoder for factory automation applications.

- Optical sensor technology (proprietary OptoASIC)
- Resolution up to 25 bit
- Power supply up to +30 VDC with Bit Parallel or SSI as electrical interface
- Cable or connector output
- Solid shaft diameter up to 10 mm
- Mounting by synchronous, clamping or centering 2,5" square flange



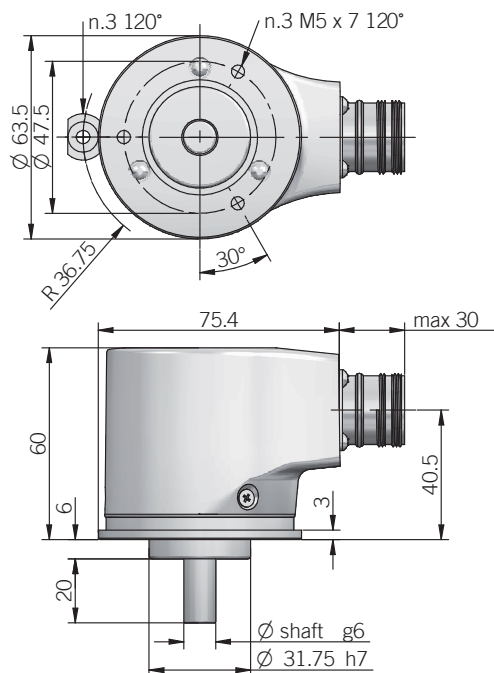
ORDERING CODE BIT PARALLEL

EAR	63A	12	G	8/30	P	P	X	10	X	PD	R	.XXX
SERIES singleturn absolute encoder EAR												
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												
RESOLUTION bit from 1 to 13 (multiples and submultiples of 360) ppr from 90 to 3600												
CODE TYPE binary B gray G (no powers of 2) binary offset code (0-XXX) BC (no powers of 2) gray offset code (0-XXX) GC												
POWER SUPPLY 8 ... 30 V DC 8/30												
ELECTRICAL INTERFACE push-pull P												
LOGIC negative N positive P												
OPTIONS to be reported if not used X latch L (with binary code) strobe S reset ZE latch / reset LZE (with binary code) strobe / reset SZE												
SHAFT DIAMETER (mod. 58 B) mm 6 (mod. 63 A / D) 3/8"- mm 9,52 (mod. 58 C - 63 A / D / E) mm 10												
ENCLOSURE RATING IP 65 shaft side / IP67 cover side X IP 67 S												
OUTPUT TYPE (without options) cable (standard length 1,5 m) PD cable (standard length 1,5 m) PE (without reset option) 19 pin MIL connector MA female connector included, without female please add 162 as variant code												
DIRECTION TYPE radial R												
VARIANT custom version XXX												

ORDERING CODE SSI	EAR	63A	13	G	8/30	S	X	2048	RS	10	X	HA	R	.XXX
SERIES singleturn absolute encoder EAR														
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														
RESOLUTION bit 13 / 16 / 17 / 18 / 21 / 25 ppr 360 / 720 / 1440 / 2880 / 3600														
CODE TYPE binary B gray G (no powers of 2) binary offset code (0-XXX) BC (no powers of 2) gray offset code (0-XXX) GC														
POWER SUPPLY 8 ... 30 V DC 8/30														
ELECTRICAL INTERFACE Serial Synchronous Interface - SSI S														
OPTION to be reported if not used X reset ZE														
INCREMENTAL RESOLUTION (powers of 2) ppr from 128 to 8192														
INCREMENTAL ELECTRICAL INTERFACE available with PC or HA output type line driver HTL L push pull P line driver RS-422 RS														
SHAFT DIAMETER (mod. 58 B) mm 6 (mod. 63 A / D) 3/8" - mm 9,52 (mod. 58 C - 63 A / D / E) mm 10														
ENCLOSURE RATING IP 65 shaft side / IP67 cover side X IP 67 S														
OUTPUT TYPE cable (standard length 1,5 m) PC (without reset option) 7 pin MIL connector MC (with reset option) 10 pin MIL connector MD 12 pin M23 connector HA 8 pin M12 connector M12 female connector included, without female please add 162 as variant code														
DIRECTION TYPE radial R														
VARIANT custom version XXX														

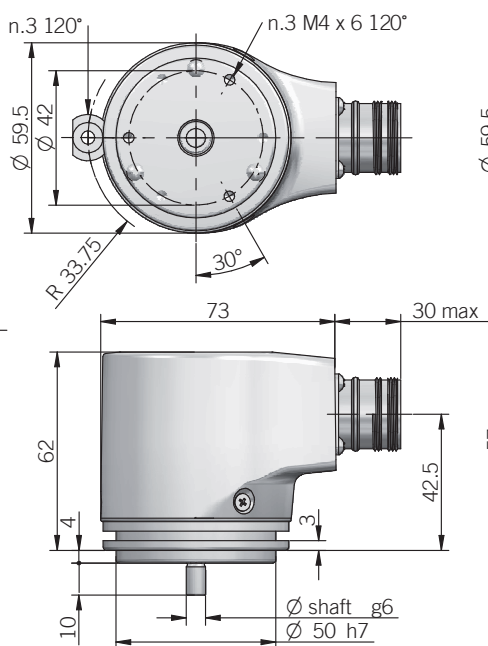
only with additional incremental output

63 A



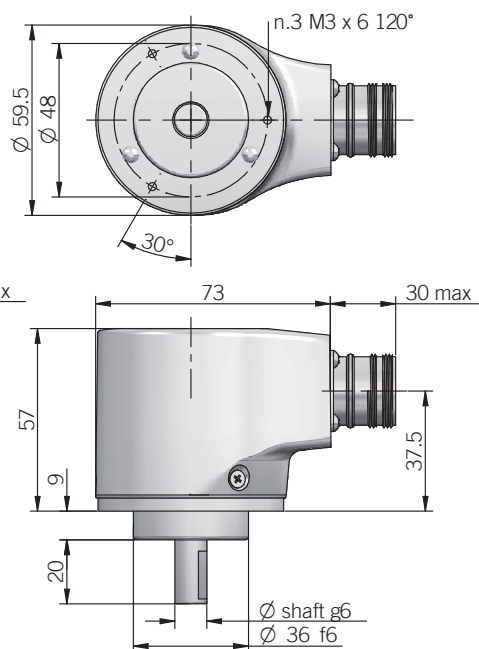
fixing clamps not included, please refer to Accessories

58 B

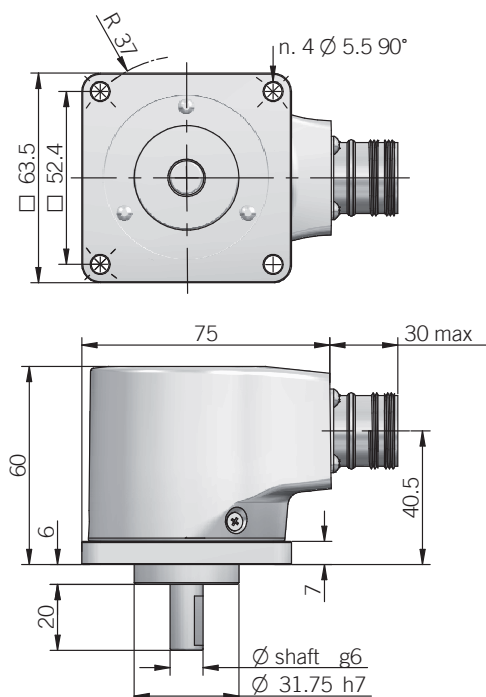


fixing clamps not included, please refer to Accessories

58 C

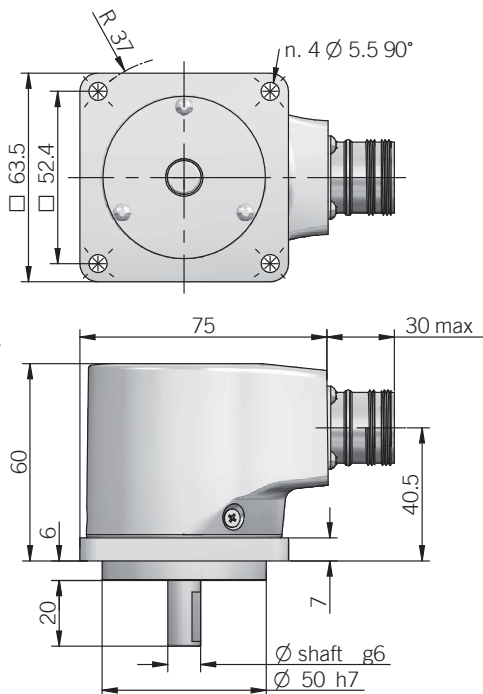


63 D



dimensions in mm

63 E



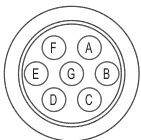
BIT PARALLEL CONNECTIONS

Function	Binary / Gray	Cable PD	Cable PE	19 pin MA
bit 1 (LSB)	B ⁰ / G ⁰	green	green	A
bit 2	B ¹ / G ¹	yellow	yellow	B
bit 3	B ² / G ²	blue	blue	C
bit 4	B ³ / G ³	brown	brown	D
bit 5	B ⁴ / G ⁴	orange or pink	orange or pink	E
bit 6	B ⁵ / G ⁵	white	white	F
bit 7	B ⁶ / G ⁶	grey	grey	G
bit 8	B ⁷ / G ⁷	purple	purple	H
bit 9	B ⁸ / G ⁸	grey / pink	grey / pink	J
bit 10	B ⁹ / G ⁹	white / green	white / green	K
bit 11	B ¹⁰ / G ¹⁰	brown / green	brown / green	L
bit 12	B ¹¹ / G ¹¹	white / yellow	white / yellow	M
bit 13	B ¹² / G ¹²	yellow / brown	yellow / brown	N
STROBE	/	/	green / blue	P
LATCH	/	/	yellow / grey	R
0 V	/	black	black	T
U / D	/	red / blue	red / blue	U
RESET	/	/	pink / green	/
+ V DC	/	red	red	V
≡	/	shield	shield	S

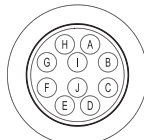
SSI CONNECTIONS

Function	Cable PC	7 pin MC	10 pin MD	12 pin HA	12 pin HA	8 pin M12
+ V DC	red	G	G	8	8	8
0 V	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+	grey	/	/	/	6	/
A-	blue	/	/	/	7	/
B+	purple	/	/	/	9	/
B-	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



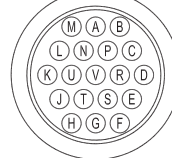
MD connector (10 pin)
Amphenol MS3102-E-18-1P
solder side view FV



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



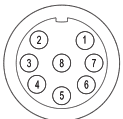
MA connector (19 pin)
Amphenol 62IN 12E 14-19 P
solder side view FV



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



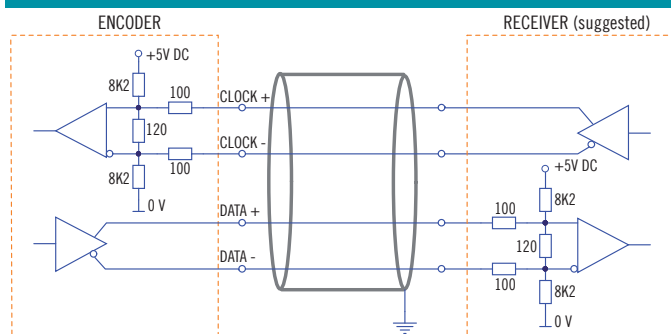
M12 connector (8 pin)
M12 A coded
solder side view FV



ELECTRICAL SPECIFICATIONS

Resolution	P = from 90 ppr to 13 bit S = from 360 ppr to 25 bit
Power supply¹	7,6 ... 30 V DC (reverse polarity protection)
Power draw without load	< 1 W
Max load current	20 mA / channel
Absolute electrical interface²	P = push pull (iC-DL) S = RS-422 (SN65LBC179Q or equivalent)
Incremental electrical interface²	L = HTL diff. (AEIC-7272, active short circuit protection) P = Push-Pull (AEIC-7272, active short circuit protection) RS = RS-422 (AELT-5000 or equivalent)
Max incremental output frequency	128 kHz
Auxiliary inputs (U/D - RESET - LATCH)	active high (+V DC) connect to 0 V 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 (T_m)	20 μ s
SSI pause time (T_p)	> 35 μ s
SSI frame	left aligned format (MSB ... LSB) up to 13 bit = length 13 bit from 14 to 21 bit = length 21 bit from 22 to 25 bit = length 25 bit
SSI status and parity bit	on request
Counting direction	decreasing clockwise (shaft view)
Start-up time	700 ms
Accuracy	± 250 arc-sec
Electromagnetic compatibility	according to 2014/30/EU directive
RoHS	according to 2015/863/EU directive
UL / CSA	certificate n. E212495

SSI SCHEMATICS



MECHANICAL SPECIFICATIONS

Shaft diameter	$\varnothing 6 / 9,52 (3/8") / 10$ mm
Enclosure rating IEC 60529	X = IP 65 shaft side / IP67 cover side S = IP 67
Max rotation speed	see table
Max shaft load³	200 N axial / 70 N radial
Shock	50 G, 11 ms (IEC 60068-2-27)
Vibration	10 G, 10 ... 2000 Hz (IEC 60068-2-6)
Moment of inertia	$1,5 \times 10^{-6}$ kgm ² (36×10^{-6} lbf ²)
Starting torque (at +20°C / +68°F)	< 0,03 Nm (4,25 Ozin)
Bearing stage material	EN-AW 2011 aluminum
Shaft material	1.4305 / AISI 303 stainless steel
Housing material	painted aluminium
Bearings	n.2 ball bearings
Bearings life	10 ⁹ revolutions
Operating temperature Bit parallel^{4,5}	-20° ... +85°C (-4 ... +185°F)
Operating temperature SSI^{4,5}	-40° ... +100°C (-40° ... +212°F) -20° ... +100°C (-4° ... +212°F) with cable output -25° ... +85°C (-13° ... +185°F) with M12 connector
Storage temperature⁵	-20° ... +85°C (-4° ... +185°F)
Weight	approx 300 g (10,58 oz)

¹ as measured at the transducer without cable influences² for further details refer to OUTPUT LEVELS on TECHNICAL BASICS section³ maximum load for static usage⁴ measured on the transducer flange⁵ condensation not allowed

ROTATION SPEED DERATING TABLE

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