EAMR 58 F - 63 F / G
BIT-PARALLEL - SSI
BLIND HOLLOW SHAFT MULTITURN ABSOLUTE ENCODER

MAIN FEATURES

Industry standard multiturn absolute encoders for factory automation applications.

- Optical/magnetic (proprietary optoASIC + energy harvesting) sensor technology
- Resolution up to 65 bit (25 bit singleturn + 40 bit multiturn)
- Power supply up to +30 VDC with Bit-parallel or SSI as electrical interface
- Cable or connector output
- Blind hollow shaft up to 15 mm
- Mounting by stator coupling, torque stop slot or torque pin

ORDERING CODE BIT PARALLEL

EAMR	58F	12 / 12	G	8/30	P	P	X	15	X	MA	R	.162	+XXX

SERIES
multiturn absolute encoder EAMR

MODEL
blind hollow shaft with stator coupling 58F
blind hollow shaft with torque stop slot 63F
blind hollow shaft with torque pin 63G

MULTITURN RESOLUTION
bit from 1 to 12

SINGLETURN RESOLUTION
bit from 1 to 13

CODE TYPE
binary B
gray G

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 with external input L
reset with external input ZE
latch / reset with external inputs LZE

BORE DIAMETER
mm 14
mm 15
diameters (6 / 8 / 9,52 (3/8") / 10 / 11 / 12 mm) with optional shaft adapter, see Accessories

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

OUTPUT TYPE
(up to 13 bit as total resolution, without reset option) 16 cores cable (standard length 1,5 m) PD
(from 14 to 25 bit as total resolution or options) 32 cores cable (standard length 1,5 m) PE
preferred cable lengths 2 / 3 / 5 / 10 m, to be added after DIRECTION TYPE (eg. PDR5)
(up to 13 bit as total resolution, without reset option) 19 pin MIL plug connector MA
(from 14 to 25 bit as total resolution) 32 pin MIL plug connector ME

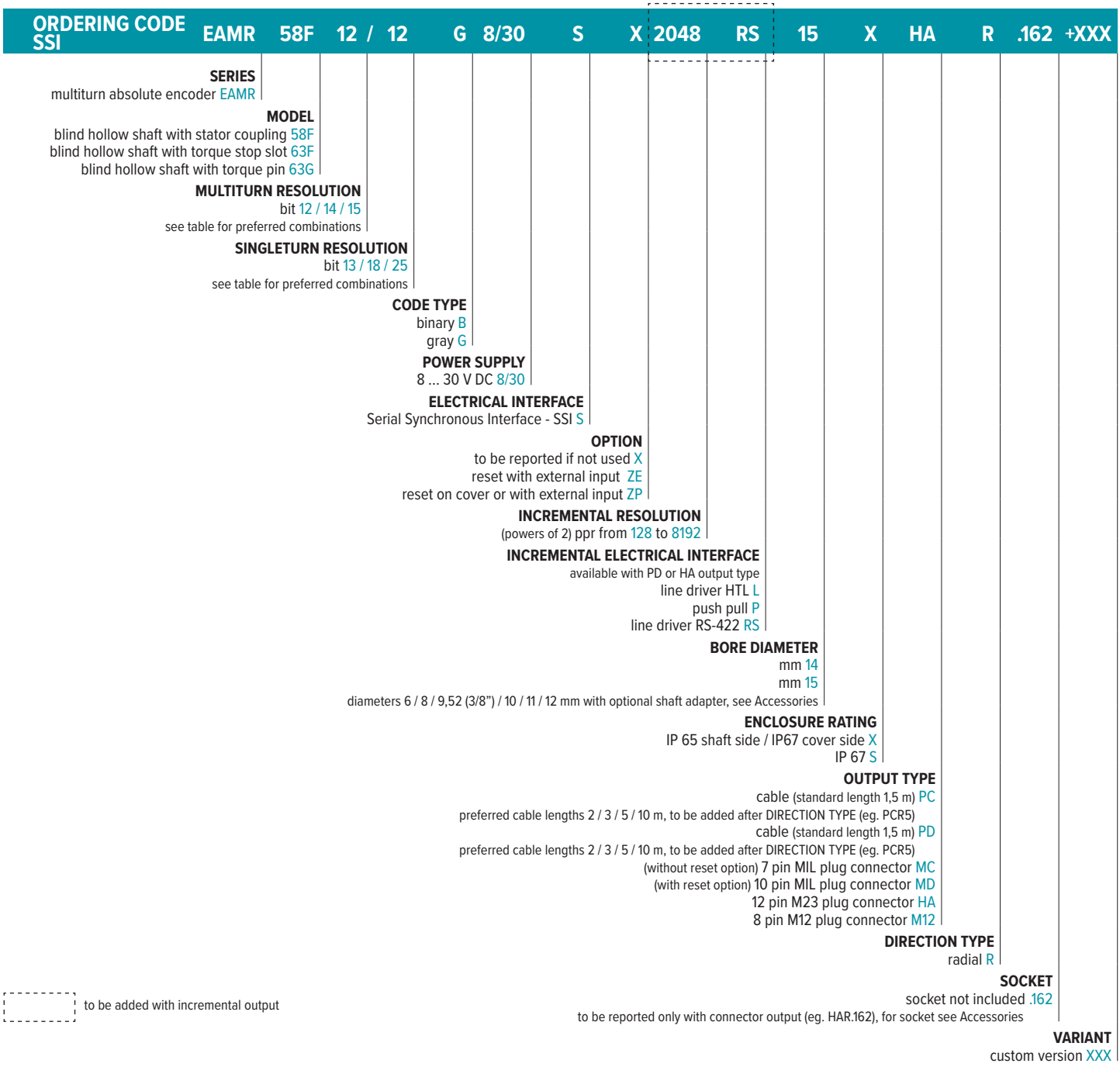
DIRECTION TYPE
radial R

SOCKET
socket not included .162
to be reported only with connector output (eg. MAR.162), for socket see Accessories

VARIANT
custom version XXX

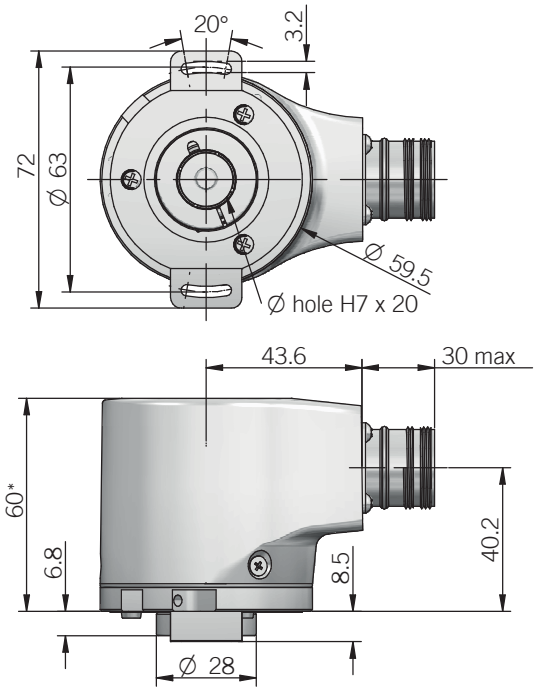
© Copyright 2025 Eltra S.p.a. Unipersonale. All rights reserved. All informations in this catalog are subject to change without notice.
Eltra takes no responsibility for typographic errors. For the terms of sales please check the website. REV. 2502

eltra.it@broadcom.com

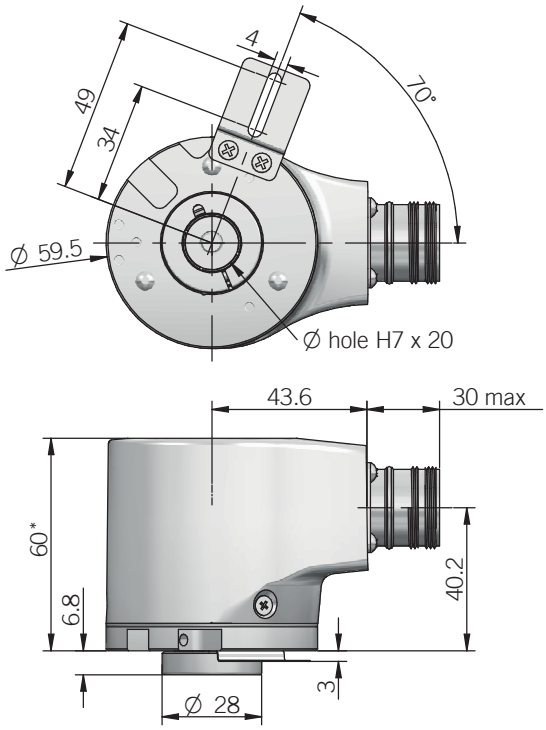


© Copyright 2025 Eltra S.p.a. Unipersonale. All rights reserved. All informations in this catalog are subject to change without notice.
Eltra takes no responsibility for typographic errors. For the terms of sales please check the website. REV. 2502

58F

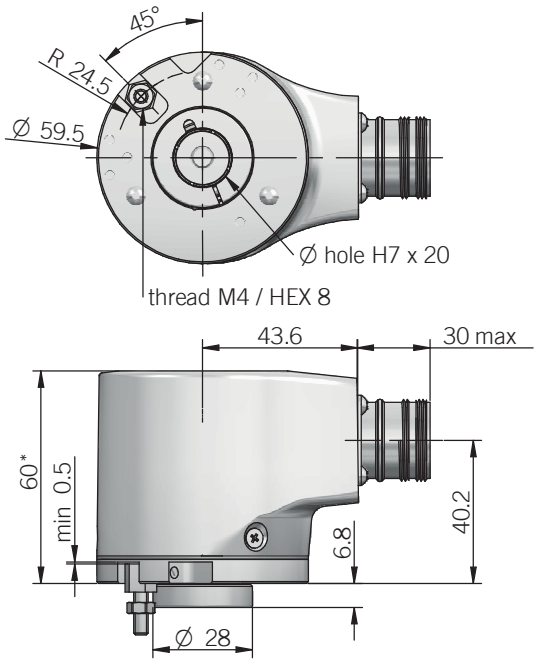


63F



for torque pin please refer to Accessories

63G



torque pin is included

* with option ZP +1,5 mm
recommended mating shaft tolerance g6
dimensions in mm

© Copyright 2025 Eltra S.p.a. Unipersonale. All rights reserved. All informations in this catalog are subject to change without notice.
Eltra takes no responsibility for typographic errors. For the terms of sales please check the website. REV. 2502

eltra.it@broadcom.com

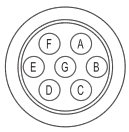
BIT-PARALLEL CONNECTIONS

Function	Binary / Gray	Cable PD	Cable PE	19 pin MA	32 pin ME
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
bit 25	B^{24} / G^{24}	/	yellow / pink	/	b
LATCH	/	/	yellow / grey	R	e
0 V	/	black	black	T	j
U / D	/	red / blue	red / blue	U	g
RESET	/	/	pink / green	/	f
+ V DC	/	red	red	V	h
⏚	/	shield	shield	S	housing

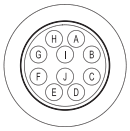
SSI CONNECTIONS

Function	Cable PC	Cable PD	7 pin MC	10 pin MD	12 pin HA	12 pin HA	8 pin M12
+ V DC	red	red	G	G	8	8	8
0 V	black	black	F	F	1	1	5
DATA +	green	green	C	C	2	2	3
DATA -	brown	brown	D	D	10	10	2
CLOCK +	yellow	yellow	A	A	3	3	4
CLOCK -	orange or pink	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	red / blue	E	E	5	5	7
RESET	white	white	/	H	4	4	1
⏚	shield	shield	housing	housing	9	housing	housing

MC connector (7 pin)
Amphenol MS3102-E-16-S
front view

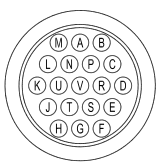


MD connector (10 pin)
Amphenol MS3102-E-18-1P
front view



HA connector (12 pin) - M23 CCW
Hummel 7.410.000000 - 7.002.912.603
front view

MA connector (19 pin)
Amphenol 62IN 12E 14-19 P
front view



ME connector (32 pin)
Glenair IPT 02 A 18-32 P F6
front view

M12 connector (8 pin)
M12 A coded
front view

© Copyright 2025 Eltra S.p.a. Unipersonale. All rights reserved. All informations in this catalog are subject to change without notice.
Eltra takes no responsibility for typographic errors. For the terms of sales please check the website. REV. 2502

ELECTRICAL SPECIFICATIONS

Multiturn resolution	12 / 14 / 15 bit please directly contact our offices for other pulses
Singleturn resolution	P = from 1 to 13 bit S = preferred combinations 12 multiturn / 13 singleturn 14 multiturn / 18 singleturn 15 multiturn / 25 singleturn please directly contact our offices for other pulses
Power supply[1]	7,6 ... 30 V DC (reverse polarity protection)
Power draw without load	< 1 W
Max load current	20 mA / channel
Absolute electrical interface[2]	P = push pull (iC-DL) S = RS-422 (THVD1451 or similar)
Incremental electrical interface[2]	L = HTL differential (AEIC-7272 or similar) P = Push-Pull (AEIC-7272 or similar) RS = RS-422 (AELT-5000 or similar)
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	25 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) 14 bit multiturn = length 32 bit (14MT + 18ST) 15 bit multiturn = lenght 40 bit (15MT + 25ST)
SSI status and parity bit	on request
Counting direction	SSI output = decreasing clockwise (shaft view) incremental output = A leads B clockwise (shaft view)
Start-up time	700 ms
Accuracy	± 0,069°
Mean time to dangerous failure ($MTTF_d$)[3] according to EN ISO 13849-1	156 years with BIT-PARALLEL output 186 years with SSI/INCREMENTAL output
Mission time (Tm)[3]	20 years
Diagnostic coverage (DC)[3]	0%
Cable type PC	shielded - fixed installation conductors section 0,22 mm² / AWG 24 bending radius min 60 mm
Cable type PD	shielded - fixed installation conductors section 0,14 mm² / AWG 26 bending radius min 50 mm
Cable type PE	shielded - fixed installation conductors section 0,14 mm² / AWG 26 bending radius min 50 mm
Electromagnetic compatibility	according to 2014/30/EU directive
RoHS	according to 2011/65/EU directive
UL / CSA	file n. E212495

ROTATION SPEED DERATING TABLE

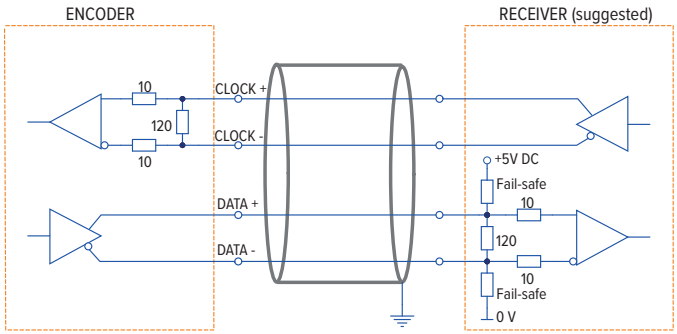
	Temperature °C (°F)	Max speed (rpm)	Max continuous speed (rpm)
IP65	up to +70 (+158)	9000	6000
	+70 ... 85 (+158 ... +185)	6000	3000
IP67	up to +70 (+158)	8000	6000
	+70 ... +85 (+158 ... +185)	4000	2000

MECHANICAL SPECIFICATIONS

Bore diameter	ø 14 / 15 mm ø 6 / 8* / 9,52 (3/8")* / 10* / 11* / 12* mm * with optional shaft adapter, please refer to Accessories
Enclosure rating IEC 60529	X = IP 65 shaft side / IP67 cover side S = IP 67
Max rotation speed	see table
Max shaft load[4]	200 N (45 lbs) axial / 60 N (13,49 lbs) radial
Shock	50 G, 11 ms (IEC 60068-2-27)
Vibration	10 G, 10 ... 2000 Hz (IEC 60068-2-6)
Moment of inertia	5 x 10^{-6} kgm² (119 x 10^{-6} lbft²)
Starting torque (at +20°C / +68°F)	< 0,03 Nm (4,25 Ozin)
Bearing stage material	aluminum
Shaft material	stainless steel
Housing material	painted aluminium
Bearings	n.2 ball bearings
Bearings life	10^9 revolutions
Operating temperature Bit-parallel[5, 6]	-20° ... +85°C (-4° ... +185°F)
Operating temperature SSI[5, 6]	-40° ... +85°C (-40° ... +185°F) -20° ... +85°C (-4° ... +185°F) with cable output -25° ... +85°C (-13° ... +185°F) with M12 connector
Storage temperature[6]	-20° ... +85°C (-4° ... +185°F)
Weight	approx 350 g (12,35 oz)

[1] as measured at the transducer without cable influences
[2] for further details refer to OUTPUT LEVELS on TECHNICAL BASICS section
[3] this product is not a safety component, for further details refer to TECHNICAL BASICS section
[4] maximum load for static usage
[5] measured on the transducer flange
[6] condensation not allowed

SSI ELECTRICAL INTERFACE



BIT-PARALLEL CONNECTOR OR CABLE CHOICE

Depending on the resolution and the number of turns selected, it is possible to calculate the connections required by the connector or 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) is required.
From 14 to 25 connections a 32 cores cable (PE) or a 32 pin connector (ME) is required.

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

© Copyright 2025 Eltra S.p.a. Unipersonale. All rights reserved. All informations in this catalog are subject to change without notice.
Eltra takes no responsibility for typographic errors. For the terms of sales please check the website. REV. 2502

eltra.it@broadcom.com