EMI 58 B / C / H / T

SOLID SHAFT MAGNETIC INCREMENTAL ENCODER

MAIN FEATURES

Standard ø 58 mm encoder series for industrial applications with high mechanical resistance requirements. Based on a proprietary magnetic sensor these encoders are designed to withstand high radial and axial shaft loads and can be mounted by flanges or fixing clamps.

- 3 channel encoder (A / B / Z) up to 10000 ppr
- Power supply up to +30 V DC with various electrical interfaces available
- Output frequency up to 800 kHz
  Cable or connector output
- Metal cover available for heavy duty applications
- Solid shaft diameter up to 12 mm
- Mounting by synchronous, clamping or coupling flange

ORDERING CODE	EMI	58C	M*	500	S	5/30	P	8	X	X	M	R	.162	+XXX

SERIES
magnetic incremental encoder series EMI

MODEL
synchronous flange ø 50 mm 58B
clamping flange ø 36 mm 58C
clamping flange ø 50 mm 58H
coupling flange ø 40 mm 58T

METAL COVER
* add for metal cover M

RESOLUTION
ppr from 1 to 10000
please refer to the preferred resolutions list

ZERO PULSE
without zero pulse S
with zero pulse Z

POWER SUPPLY
(with L electrical interface) 5 V DC 5
5 ... 30 V DC 5/30

ELECTRICAL INTERFACE
NPN open collector C
push-pull P
line driver L
power supply 5/30 V DC - output RS-422 RS

SHAFT DIAMETER
(mod. B) mm 6
(mod. C) mm 8
(mod. B / C / H) (3/8") mm 9,52
mm 10
(mod. T) mm 12

ENCLOSURE RATING
IP 54 X
(mod. B / C / T) IP 66 S

OPTION
to be reported X

OUTPUT TYPE
cable (standard length 1,5 m) P
preferred cable lengths 2 / 3 / 5 / 10 m, to be added after DIRECTION TYPE (eg. PR5)
MIL plug connector M
JIS-C-5432 IP40 plug connector J
M12 plug connector M12
M23 plug connector H
M16 IP40 plug connector C

DIRECTION TYPE
axial A
radial R

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

VARIANT
custom version XXX

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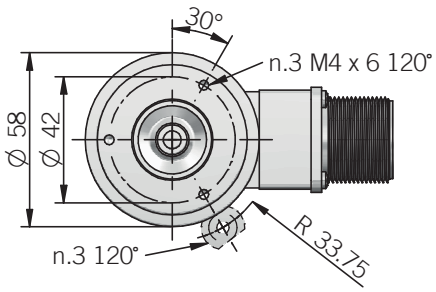
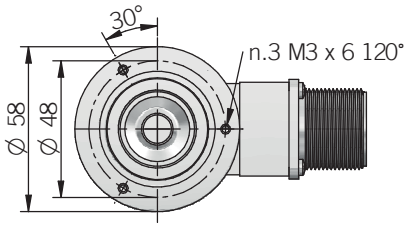
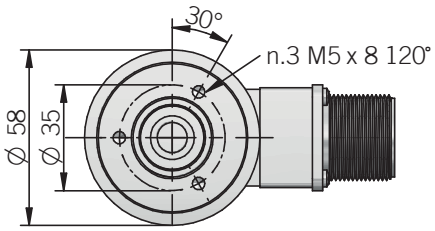
58B

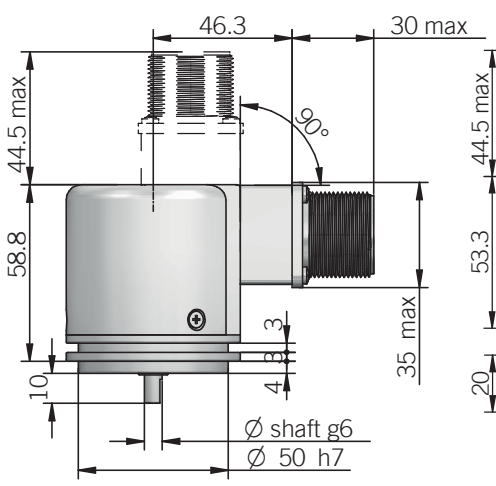


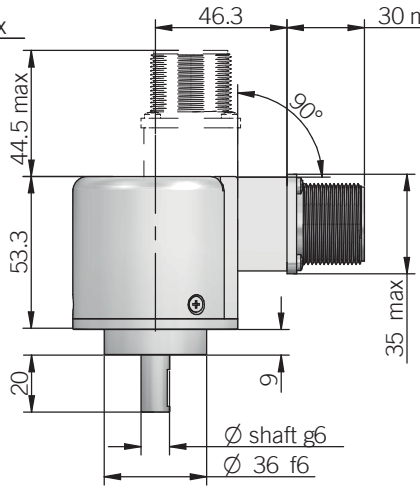
58C

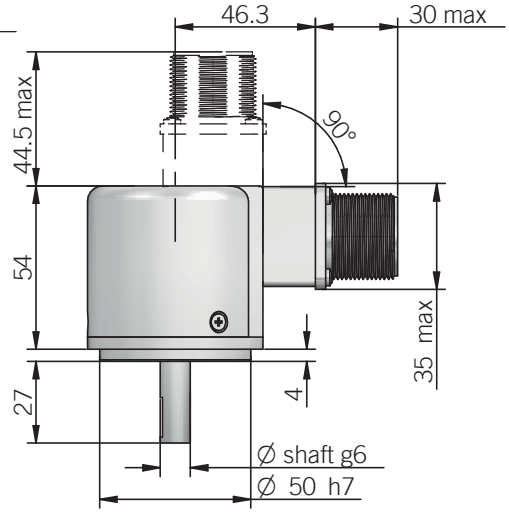


58H



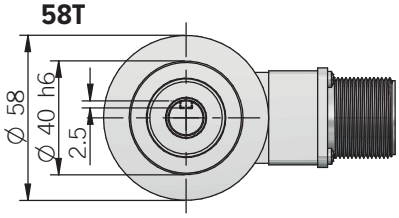




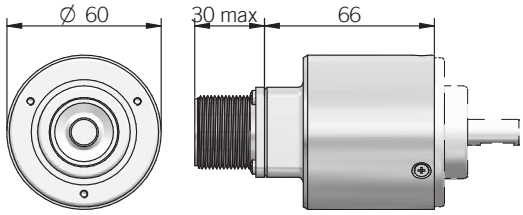


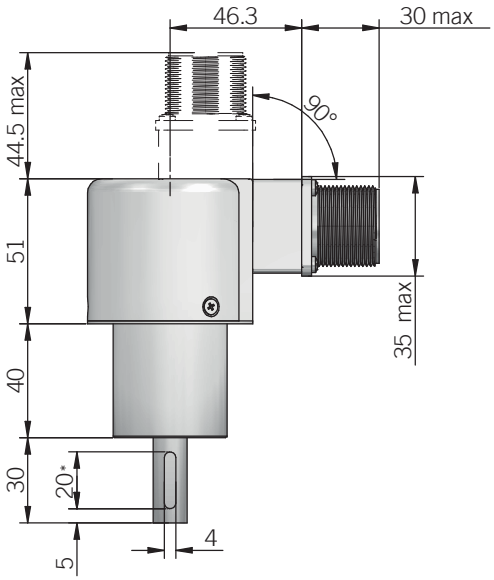
fixing clamps not included, please refer to Accessories

58T

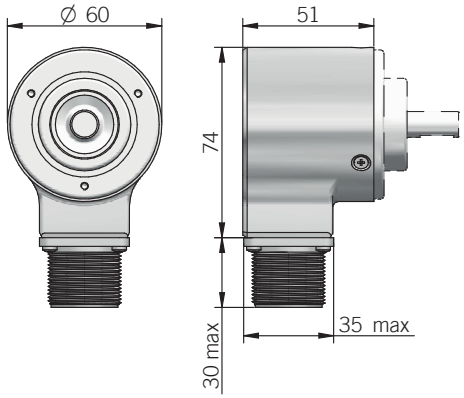


DIMENSION WITH METAL COVER AND AXIAL OUTPUT





DIMENSION WITH METAL COVER AND RADIAL OUTPUT



* slot only with 12 mm shaft diameter
recommended mating shaft tolerance H7
dimensions in mm

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ELECTRICAL SPECIFICATIONS

Resolution	from 1 to 10000 ppr
Power supply[1]	5 = 4,5 ... 5,5 V DC 5/30 = 4,5 ... 30 V DC (reverse polarity protection)
Power draw without load	0,8 W max
Max load current	C / P = 50 mA / channel L / RS = 20 mA / channel
Electrical interface[2]	NPN open collector (AEIC-7273, pull-up max +30 V DC) push-pull / line driver HTL (AEIC-7272 or similar) line driver RS-422 (AELT-5000 or similar)
Max output frequency	800 kHz
Counting direction	A leads B clockwise (shaft view)
Index signal	180°e (gated A)
Startup time typical	20 ms
Accuracy	< 0,2° at +20°C (+68°F) ± 0,5° in the operating temperature range
Hysteresys	0,70° up to 256 ppr 0,35° from 257 ppr to 10000 ppr
Mean time to dangerous failure ($MTTF_d$)[3] **according to EN ISO 13849-1**	275 years
Mission time (Tm)[3]	20 years
Diagnostic coverage (DC)[3]	0%
Cable type	shielded - fixed installation conductors section 0,22 mm² / AWG 24 bending radius min 60 mm
Electromagnetic compatibility	according to 2014/30/EU directive
RoHs	according to 2011/65/EU directive
UL / CSA	file n. E212495

MECHANICAL SPECIFICATIONS

Shaft diameter	ø 6 / 8 / 9,52 (3/8") / 10 / 12 mm
Enclosure rating IEC 60529	X = IP 54 S = IP 66
Max rotation speed	6000 rpm
Max shaft load[4]	10 N (2,25 lbs) axial with ø 6 mm shaft 20 N (4,45 lbs) radial with ø 6 mm shaft 200 N (45 lbs) axial / 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 x 10^{-6} kgm² (36 x 10^{-6} lbft²)
Starting torque (at +20°C / +68°F)	< 0,02 Nm (2,83 Ozin) with X enclosure rating < 0,06 Nm (8,50 Ozin) with S enclosure rating
Bearing stage material	aluminum
Shaft material	stainless steel
Housing material	PA66 glass fiber reinforced / painted aluminum
Bearings	n.2 ball bearings
Bearings life	10^9 revolutions
Operating temperature[5, 6]	-25° ... +100°C (-13° ... +212°F) -25° ... +85°C (-13° ... +185°F) with M12 connector
Storage temperature[6]	-25° ... +70°C (-13° ... +158°F)
Weight	350 g (12,35 oz) 450 g (15,87 oz) with metal cover

[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

PREFERRED RESOLUTIONS

2 - 4 - 5 - 6 - 8 - 10 - 12 - 16 - 20 - 30 - 40 - 50 - 60 - 80 - 90 - 100 - 125 - 128 - 200 - 250 - 256 - 360 - 400 - 500 - 512 - 720 - 1000 - 1024 - 1440 - 2000 - 2048 - 3600 - 4096 - 5000 - 7200 - 10000

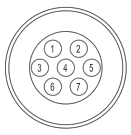
please directly contact our offices for other pulses

CONNECTIONS

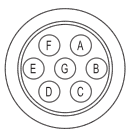
Function	Cable C / P	Cable L / RS	7 pin J C / P	7 pin J L / RS no Zero	7 pin M C / P	7 pin M L / RS no Zero	10 pin J L / RS with Zero	10 pin M L / RS with Zero	5 pin M12 C / P	8 pin M12 L / RS	12 pin H	5 pin C C / P	8 pin C L / RS
+V DC	red	red	6	4	F	D	4 - 5	D - E	2	7	12	5	7
0 V	black	black	1	6	A	F	6	F	4	1	10	1	8
A+	green	green	3	1	C	A	1	A	3	6	5	2	1
A-	/	brown or grey	/	3	/	C	7	G	/	5	6	/	2
B+	yellow	yellow	5	2	E	B	2	B	1	4	8	4	3
B-	/	orange	/	5	/	E	8	H	/	3	1	/	4
Z+	blue	blue	4	/	D	/	3	C	5	2	3	3	5
Z-	/	white	/	/	/	/	9	I	/	8	4	/	6
⏚	shield	shield	7	7	G	G	10	J	housing[1]	housing[1]	9	housing[1]	housing[1]

[1] only with metal cover

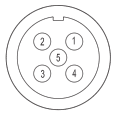
J connector (7 pin)
JIS-C-5432 IP40 Size 16
front view



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



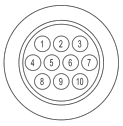
M12 connector (5 pin)
M12 A coded
front view



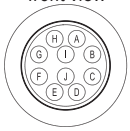
C connector (5 pin)
Amphenol C091 M16 IP40
front view

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

J connector (10 pin)
JIS-C-5432 IP40 Size 16
front view

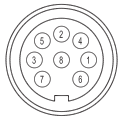


M connector (10 pin)
Amphenol MS3102-E-18-1
front view



M12 connector (8 pin)
M12 A coded
front view

C connector (8 pin)
Amphenol C091 IP40 IEC 60130-9
front view



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