

MAIN FEATURES

Standard encoder series for industrial environments with high mechanical resistance requirements. Specially designed for direct mounting on motors or tachometric dynamos thanks to integrated elastic coupling that allows radial and / or axial play on the motor shafty.

- 3 channel encoder (A / B / Z) up to 24000 ppr
- Power supply up to +30 V DC with various electrical interfaces available
- Output frequency up to 500 kHz
- Cable or connector output
- Metal cover available for heavy duty applications
- Integrated elastic coupling up to 10 mm bore diameter



ORDERING CODE **ER** **721** **A** **M*** **500** **S** **5/28** **P** **8** **X** **6** **M** **R** **.162** **+XXX**

SERIES
incremental encoder series **ER**

MODEL
fixing holes ø 63,5 mm **721**
fixing holes ø 65 mm **722**
fixing holes ø 57 mm **723**
fixing holes ø 60 mm **724**

FLANGE TYPE
flange type **A**
flange type **B**

METAL COVER
* add for metal cover **M**

RESOLUTION
ppr from **100** to **24000**
refer to the available pulses list

ZERO PULSE
without zero pulse **S**
with zero pulse **Z**

POWER SUPPLY
(with L electrical interface) 5 V DC **5**
5 ... 28 V DC **5/28**

ELECTRICAL INTERFACE
NPN open collector **C**
push-pull **P**
line driver **L**
power supply 5/28 V DC - output RS-422 **RS**

BORE DIAMETER
mm **6**
mm **8**
mm **10**

ENCLOSURE RATING
IP 54 **X**
(mod. 721 / 722 max 2500 ppr) IP 66 **S**

MAX ROTATION SPEED
(IP 66) 3000 rpm **3**
(IP 54) 6000 rpm **6**

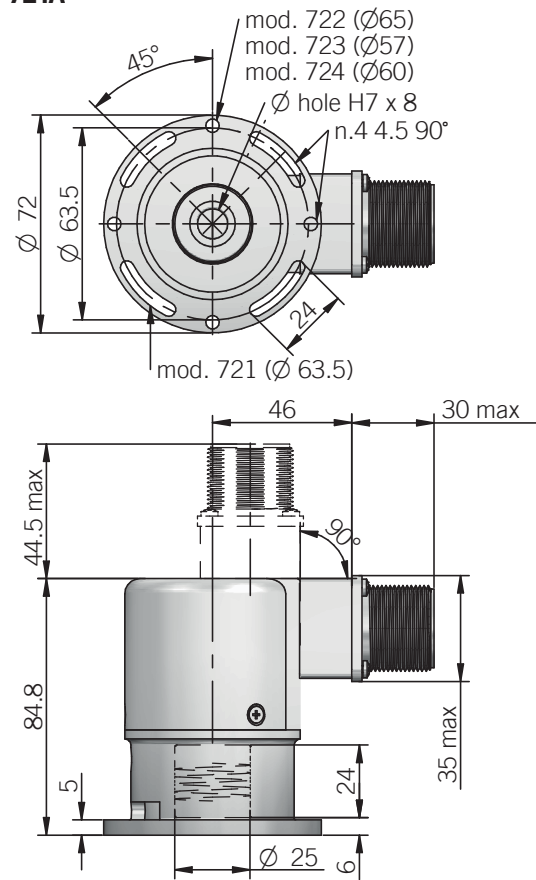
OUTPUT TYPE
cable (standard length 1,5 m) **P**
preferred cable lengths 2 / 3 / 5 / 10 m, to be added after **DIRECTION TYPE** (eg. PR5)
MIL plug connector **M**
JIS-C-5432 IP40 plug connector **J**
M12 plug connector **M12**
M23 plug connector **H**
M16 IP40 plug connector **C**

DIRECTION TYPE
axial **A**
radial **R**

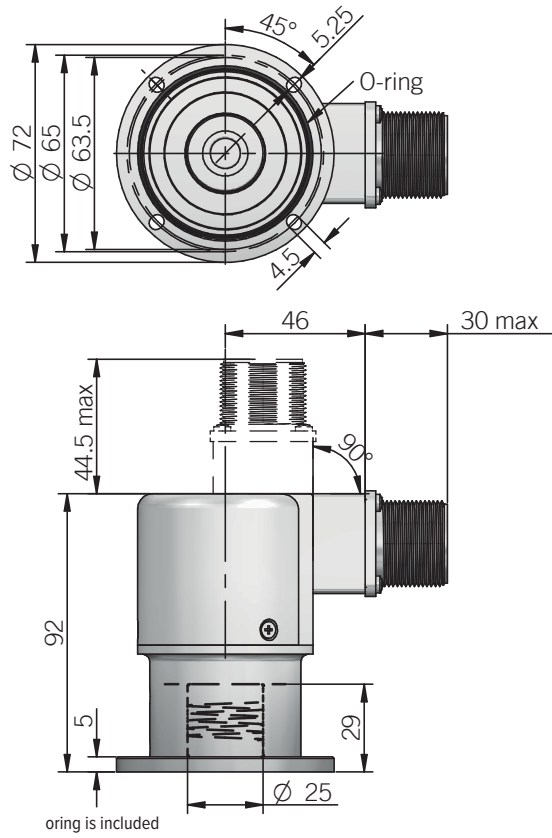
SOCKET
socket not included **.162**
to be reported only with connector output (eg. MR.162), for socket see Accessories

VARIANT
custom version **XXX**

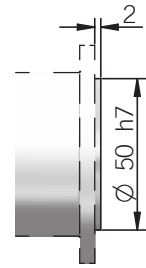
721A



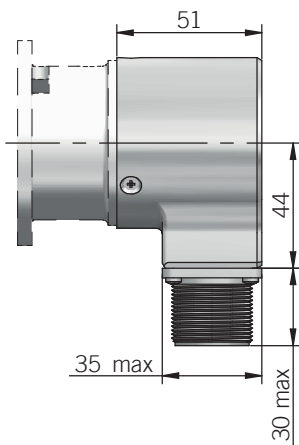
721A (S ENCLOSURE RATING)



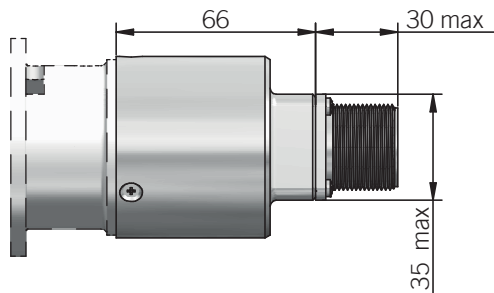
72B FLANGE



DIMENSIONS WITH METAL COVER AND RADIAL OUTPUT



DIMENSIONS WITH METAL COVER AND AXIAL OUTPUT



recommended mating shaft tolerance g6
dimensions in mm

ELECTRICAL SPECIFICATIONS

Resolution	from 100 to 24000 ppr
Power supply ¹	5 = 4,5 ... 5,5 V DC 5/28 = 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	250 kHz up to 6000 ppr / 500 kHz from 7200 ppr
Counting direction	A leads B clockwise (shaft view)
Index signal	180°e (gated A)
Mean time to dangerous failure (MTTF) ³ according to EN ISO 13849-1	263 years
Mission time (Tm) ³	20 years
Diagnostic coverage (DC) ³	0%
Cable type	shielded - fixed installation conductors section 0,22 mm ² / 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

¹ as measured at the transducer without cable influences² for further details refer to OUTPUT LEVELS on TECHNICAL BASICS section³ this product is not a safety component, for further details refer to TECHNICAL BASICS section⁴ measured on the transducer flange⁵ condensation not allowed

MECHANICAL SPECIFICATIONS

Bore diameter	ø 6 / 8 / 10 mm
Enclosure rating IEC 60529	X = IP 54 S = IP 66
Max rotation speed	6000 rpm with X enclosure rating 3000 rpm / 70° C with S enclosure rating 2000 rpm / 85° C with S enclosure rating
Shock	50 G, 11 ms (IEC 60068-2-27)
Vibration	10 G, 10 ... 2000 Hz (IEC 60068-2-6)
Moment of inertia	3,5 x 10 ⁻⁶ kgm ² (83 x 10 ⁻⁶ lbf ²)
Starting torque (at +20°C / +68°F)	< 0,02 Nm (2,83 Ozin) with X enclosure rating < 0,04 Nm (5,66 Ozin) with S enclosure rating
Bearing stage material	aluminum
Shaft material	stainless steel
Housing material	PA66 glass fiber reinforced / painted aluminum
Elastic coupling material	aluminum
Bearings	n.2 ball bearings
Bearings life	10 ⁹ revolutions
Operating temperature ^{4,5}	-25° ... +85°C (-13° ... +185°F)
Storage temperature ⁵	-25° ... +70°C (-13° ... +158°F)
Weight	400 g (14,11 oz) 500 g (17,64 oz) with metal cover

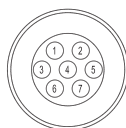
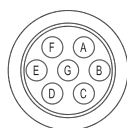
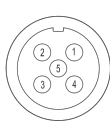
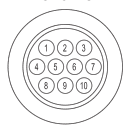
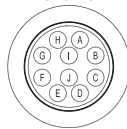
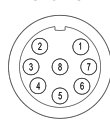
RESOLUTIONS

100 - 120 - 128 - 150 - 200 - 240 - 250 - 256 - 300 - **360** - 400 - 480 - **500** - **512** - **600** - 625 - **720** - 800 - 900 - **1000** - **1024** - 1200 - 1250 - 1440 - 1600 - 1800 - **2000** - **2048** - **2500** - 3000 - **3600** - 4000 - 4096 - **5000** - 6000 - **7200** - 8000 - 8192 - 9000 - **10000** - 10240 - 12000 - **14400** - 16000 - 16384 - 18000 - **20000** - 20480 - 24000

please directly contact our offices for other pulses, preferred resolutions in bold

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 coverJ connector (7 pin)
JIS-C-5432 IP40 Size 16
front viewM connector (7 pin)
Amphenol MS3102-E-16-S
front viewM12 connector (5 pin)
M12 A coded
front viewC connector (5 pin)
Amphenol C091 M16 IP40
front viewH connector (12 pin) - M23 CCW
Hummel 7.410.000000 - 7.002.912.603
front viewJ connector (10 pin)
JIS-C-5432 IP40 Size 16
front viewM connector (10 pin)
Amphenol MS3102-E-18-1
front viewM12 connector (8 pin)
M12 A coded
front viewC connector (8 pin)
Amphenol C091 IP40 IEC 60130-9
front view