INCREMENTAL ENCODER

DESIGNED IN ORDER TO CONTROL THE POSITION AND THE ANGULAR SPEED OF MOVING MECHANICAL AXES

Main application field are: wood-working machinery, textile machines, CNC machinery, and so forth.

ELTRA brand encoders offers a complete range of encoders with resolution up to 24000 pulses per turn (ppr) with a wide flange choice and several electrical interfaces. Shaft, blind hollow shaft and through hollow shaft up to a diameter of 60 mm (2.36”) are available.

EH 38 A / B / D

SOLID SHAFT INCREMENTAL ENCODER

MAIN FEATURES

Miniaturized ø 38 mm encoder series for application in small devices.
Recommended when a minimal size is required even providing excellent performances.

- 3 channel encoder (A / B / Z) up to 1024 ppr
- Power supply up to +30 V DC with several electrical interfaces available
- Up to 105 kHz output frequency
- Cable output, connector available on cable end
- Solid shaft diameter up to 6 mm
- Mounting by clamping or centering square flange

ORDERING CODE

EH | 38A | 500 | S | 5/28 | P | 6 | X | 3 | PR | .XXX

SERIES
incremental encoder series EH

MODEL
clamping flange ø 20 mm 38A
square flange □ 36,5 mm 38B
square flange □ 32 mm 38D

RESOLUTION
ppr from 50 to 1024
refer to the available pulses list

ZERO PULSE
without zero pulse S
with zero pulse Z

POWER SUPPLY
5 V DC 5
5 ... 28 V DC 5/28

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

SHAFT DIAMETER
mm 6

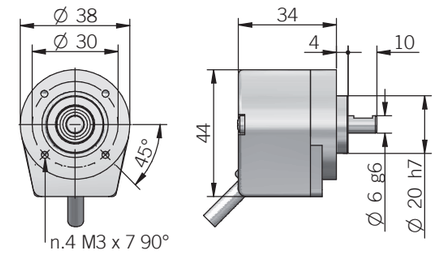
ENCLOSURE RATING
IP 54 X

MAX ROTATION SPEED
3000 rpm 3

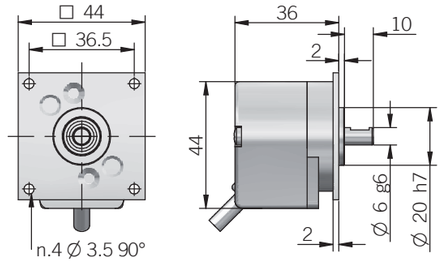
OUTPUT TYPE
radial cable (standard length 0,5 m) PR
preferred cable lengths 1,5 / 2 / 3 / 5 / 10 m, to be added after OUTPUT TYPE (eg. PR5)

VARIANT
custom version XXX

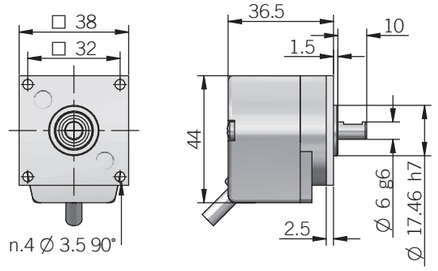
38 A



38 B



38 D



dimensions in mm

RESOLUTIONS

50* - **100** - **200** - 250 - 256 - 360 - 400 - **500** - **512** - **1000** - 1024

please directly contact our offices for other pulses, preferred resolutions in bold
*available only without zero pulse

ELECTRICAL SPECIFICATIONS

Resolution	from 50 to 1024 ppr
Power supply[1]	5 = 4,5 ... 5,5 V DC 5/28 = 4,5 ... 30 V DC (reverse polarity protection)
Current consumption without load	100 mA max
Max load current	C / P = 50 mA / channel L = 20 mA / channel
Electrical interface[2]	NPN open collector (AEIC-7273, pull-up max +30 V DC) push-pull / line driver HTL (AEIC-7272) line driver RS-422 (AELT-5000 or equivalent)
Max output frequency	105 kHz
Counting direction	A leads B clockwise (shaft view)
Electromagnetic compatibility	according to 2014/30/EU directive
RoHS	according to 2015/863/EU directive
UL / CSA	certificate n. E212495

MECHANICAL SPECIFICATIONS

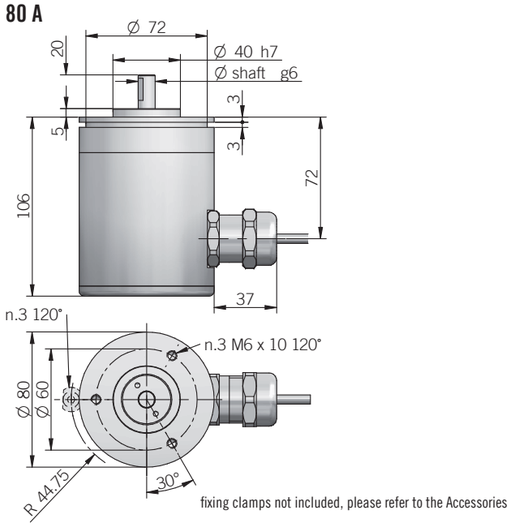
Shaft diameter	ø 6 mm
Enclosure rating	IP 54 (IEC 60529)
Max rotation speed	3000 rpm
Max shaft load[3]	5 N axial / radial
Shock	50 G, 11 ms (IEC 60068-2-27)
Vibration	10 G, 10 ... 2000 Hz (IEC 60068-2-6)
Moment of inertia	0,05 x 10^{-6} kgm^2 (1,2 x 10^{-6} lbft^2)
Starting torque (at +20°C / +68°F)	< 0,01 Nm (1,42 Ozin)
Bearing stage material	aluminum UNI 5076
Shaft material	1.4305 / AISI 303 stainless steel
Housing material	PA66 glass fiber reinforced
Bearings	n.2 ball bearings
Bearings life	10^9 revolutions
Operating temperature[4,5]	-20° ... +70°C (-4° ... +158°F)
Storage temperature[5]	-20° ... +70°C (-4° ... +158°F)
Weight	150 g (5,29 oz)

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

CONNECTIONS

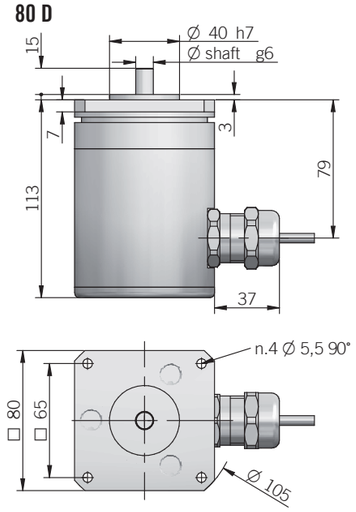
Function	Cable C / P	Cable L
+V DC	red	red
0 V	black	black
A+	green	green
A-	/	brown or grey
B+	yellow	yellow
B-	/	orange
Z+	blue	blue
Z-	/	white
⏚	shield	shield

80 A



fixing clamps not included, please refer to the Accessories

80 D



dimensions in mm

ELECTRICAL SPECIFICATIONS

Resolution	from 100 to 10000 ppr
Power supply[1]	5 = 4,5 ... 5,5 V DC 5/28 = 4,5 ... 30 V DC (reverse polarity protection)
Current consumption without load	80 mA 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) line driver RS-422 (AELT-5000 or equivalent)
Max output frequency	250 kHz up to 6000 ppr 500 kHz from 7200 ppr
Counting direction	A leads B clockwise (shaft view)
Electromagnetic compatibility	according to 2014/30/EU directive
RoHS	according to 2015/863/EU directive
UL / CSA	certificate n. E212495

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

EPL MARKING

II 2GD
Ex d IIC T6 Gb
Ex tb IIIC T85°C Db
IP 65

II 2GD
II: group II: different than mines
2: category 2: high level of protection
GD: areas containing gas (G) and dust (D)

Ex d IIC T6 Gb
Ex d: flameproof enclosure for explosive atmospheres with gases, vapours and mists
IIC: group of gas IIC
T6: max surface temperature +85°C of the device for atmospheres with gas
Gb: product with a high level of protection

Ex tb IIIC T85°C Db
Ex tb: flameproof enclosure safety type
IIIC: group of dust combustibles IIIC
T85°C: max surface temperature +85°C of the device in the presence of dust
Db: product with a high level of protection

MECHANICAL SPECIFICATIONS

Shaft diameter	ø 10 mm
Enclosure rating	IP 65 (IEC 60529)
Max rotation speed	3000 rpm
Max shaft load[3]	200 N 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} kgm^2 (36 x 10^{-6} lbft^2)
Starting torque (at +20°C / +68°F)	< 0,06 Nm (8,50 Ozin)
Bearing stage material	anodized aluminum
Shaft material	1.4305 / AISI 303 stainless steel
Housing material	anodized aluminum
Bearings	n.2 ball bearings
Bearings life	10^9 revolutions
Operating temperature[4, 5]	-20° ... +50°C (-4° ... +122°F)
Storage temperature[5]	-20° ... +70°C (-4° ... +158°F)
Weight	1200 g (42,33 oz)

CONNECTIONS

Function	Cable C / P	Cable L / RS
+V DC	brown	brown
0 V	gray	gray
A+	green	green
A-	/	red
B+	yellow	yellow
B-	/	pink
Z+	white	blue
Z-	/	white
⏚	shield	shield

RESOLUTIONS

100 - 200 - **360** - 400 - **500** - **1000** - **1024** - 1440 - **2000** - **2048** - **2500** - 3000 - **3600** - 4000 - 4096 - **5000** - 6000 - **7200** - 8000 - 8192 - 9000 - **10000**

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

EH 90 A - EH 115 A / R

SOLID SHAFT INCREMENTAL ENCODER

MAIN FEATURES

Encoder series for harsh enviroments with high mechanical resistance requirements.
Model 90 can be mounted by flanges or fixing clamps; model 115 has a tachometer generator REO-444 type compatible plug with optional centrifugal relay.

- 3 channel encoder (A / B / Z) up to 2048 ppr
- Redundancy encoder with double output and / or double resolutions
- Power supply up to +24 V DC with several electrical interfaces available
- Up to 105 kHz output frequency
- Solid shaft diameter up to 11 mm
- Mounting by syncronous or REO-444 flange
- Model 115R available with centrifugal relay

ORDERING CODE EH 90A 500 S 8/24 P 1000 Z 8/24 P 8 X 6 P R . XXX + 2000

SERIES
incremental encoder series EH

MODEL
synchronous flange ø 40 mm 90A
flange REO-444 115A
flange REO-444 with centrifugal relay 115R

RESOLUTION
ppr from 200 to 2048
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
8 ... 24 V DC 8/24

ELECTRICAL INTERFACE
NPN open collector C
push-pull P
line driver L

RESOLUTION

ZERO PULSE

POWER SUPPLY

ELECTRICAL INTERFACE

SHAFT DIAMETER
(mod. 90A) mm 8
(mod. 90A) (3/8") mm 9,52
mm 10
(mod. 115A - 115R) mm 11

ENCLOSURE RATING
IP 54 X
(mod. 90) 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 connector M
JIS-C-5432 connector J
female connector included, without female please add 162 as variant code

DIRECTION TYPE
axial A
radial R

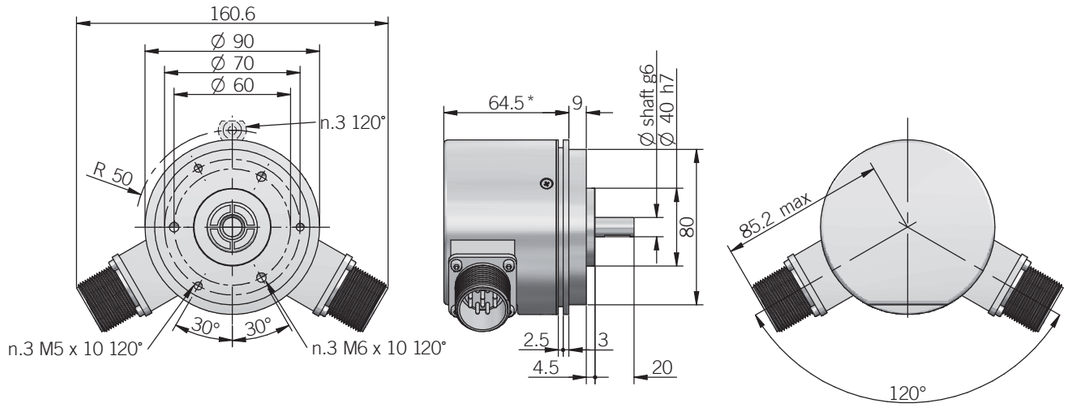
VARIANT
custom version XXX

RELAY INTERVENTION SPEED
(mod. 115R) from 600 to 4300
for other speeds please contact our offices directly

To be indicated only in the models 90A - 115A for double electronics and double resolution
See examples:

Double resolution and double electronics: **EH90A1024Z5L-2048Z8/24L10X...**
Double resolution and same electronics: **EH90A1024-2048Z5L10X...**
Same resolution and double electronics: **EH90A1024Z5L-Z8/24L10X...**

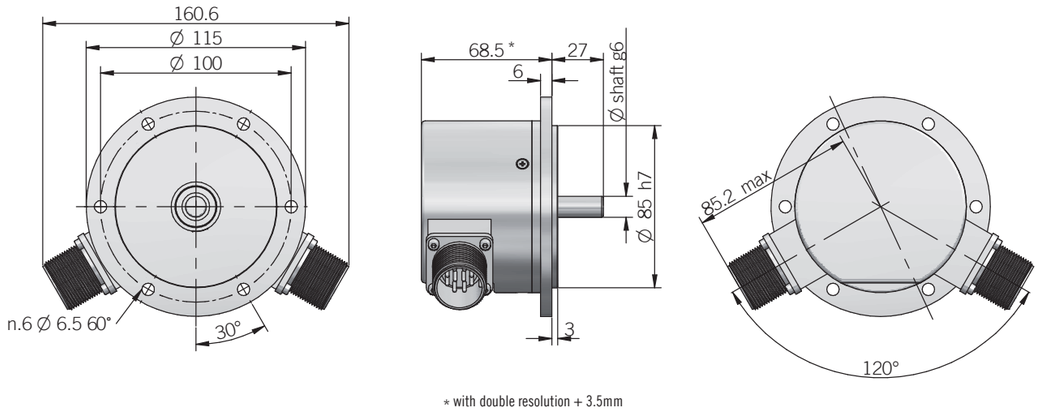
90 A with double output / resolution



fixing clamps not included, please refer to the Accessories

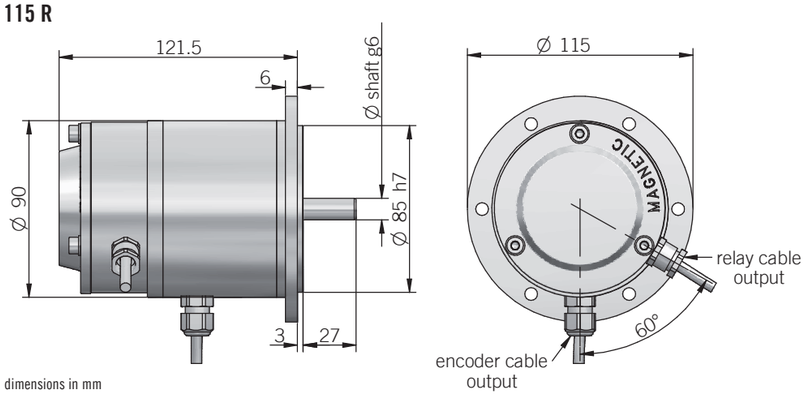
* with double resolution + 3.5mm

115 A with double output / resolution



* with double resolution + 3.5mm

115 R



dimensions in mm

ELECTRICAL SPECIFICATIONS

Resolution	from 200 to 2048 ppr
Power supply[1]	5 = 4,5 ... 5,5 V DC 8/24 = 4,5 ... 30 V DC (reverse polarity protection)
Current consumption without load	100 mA max
Max load current	C / P = 50 mA / channel L = 20 mA / channel
Electrical interface[2]	NPN open collector (AEIC-7273, pull-up max +30 V DC) push-pull / line driver HTL (AEIC-7272) line driver RS-422 (AELT-5000 or equivalent)
Max output frequency	105 kHz
Counting direction	A leads B clockwise (shaft view)
Electromagnetic compatibility	according to 2014/30/EU directive
RoHS	according to 2015/863/EU directive
UL / CSA	certificate n. E212495

RESOLUTIONS

200 - 250 - 500 - 512 - **1000** - **1024** - **2000** - **2048**

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

RELAY CHARACTERISTICS

Intervention speed	from 600 to 4300 rpm
Accuracy	± 3 %
Contact capacity	2 A / 250 V AC 3,3 A / 125 V AC
Type of contact	Normally Closed (NC)

MECHANICAL SPECIFICATIONS

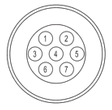
Shaft diameter	ø 8 / 9,52 (3/8") / 10 / 11 mm
Enclosure rating	X = IP 54 (IEC 60529) S = IP 66 (IEC 60529)
Max rotation speed	IP 54 - 6000 rpm IP 66 - 3000 rpm
Max shaft load[3]	200 N axial / radial
Shock	50 G, 11 ms (IEC 60068-2-27)
Vibration	10 G, 10 ... 2000 Hz (IEC 60068-2-6)
Moment of inertia	3,5 x 10^{-6} kgm^2 (83 x 10^{-6} lbft^2)
Starting torque (at +20°C / +68°F)	< 0,02 Nm (2,8 Ozln) IP 54 < 0,06 Nm (8,5 Ozln) IP 66
Bearing stage material	EN-AW 2011 aluminum
Shaft material	1.4305 / AISI 303 stainless steel
Housing material	painted aluminum
Bearings	n.2 ball bearings
Bearings life	10^9 revolutions
Operating temperature[4, 5]	-10° ... +60°C (+14° ... +140°F)
Storage temperature[5]	-25° ... +70°C (-13° ... +158°F)
Weight	750 g (26,46 oz) 1050 g (37,04 oz) with relay

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

CONNECTIONS

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

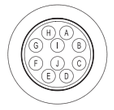
J connector (7 pin)
JIS-C-5432 Size 16
solder side view FV



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

J connector (10 pin)
JIS-C-5432 Size 16
solder side view FV

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



ELECTRICAL SPECIFICATIONS

Resolution	from 1 to 10000 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	800 mW
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) line driver RS-422 (AELT-5000 or equivalent)
Max output frequency	250 kHz up to 6000 ppr 500 kHz from 7200 ppr
Counting direction	A leads B clockwise (shaft view)
Electromagnetic compatibility	according to 2014/30/EU directive
RoHS	according to 2015/863/EU directive
UL / CSA	certificate n. E212495

EL SERIES RESOLUTIONS

1 - 2 - 4 - 5 - 10 - 15 - 16 - 20 - 25 - 30 - 32 - 40 - 50 - 60 - 70 - 80 - 90 - 160 - 180 - 350 - 450 - 660 - 700 - 750 - 1500

ER SERIES 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**

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

MECHANICAL SPECIFICATIONS

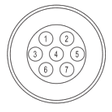
Shaft diameter	ø 8 / 9,52 (3/8") / 10 / 11 mm
Enclosure rating	X = IP 54 (IEC 60529) S = IP 66 (IEC 60529)
Max rotation speed	IP 54 - 6000 rpm IP 66 - EL 3000 rpm / 60° C ER 3000 rpm / 70° C - 2000 rpm / 85° C
Max shaft load[3]	200 N axial / radial
Shock	50 G, 11 ms (IEC 60068-2-27)
Vibration	10 G, 10 ... 2000 Hz (IEC 60068-2-6)
Moment of inertia	3,5 x 10^{-6} kgm^2 (83 x 10^{-6} lbft^2)
Starting torque (at +20°C / +68°F)	< 0,02 Nm (2,83 Ozin) IP 54 < 0,06 Nm (8,50 Ozin) IP 66
Bearing stage material	EN-AW 2011 aluminum
Shaft material	1.4305 / AISI 303 stainless steel
Housing material	PA66 glass fiber reinforced / painted aluminum
Bearings	n.2 ball bearings
Bearings life	10^9 revolutions
Operating temperature[4, 5]	-10° ... +60°C (+14° ... +140°F) EL series -25° ... +85°C (-13° ... +185°F) ER series
Storage temperature[5]	-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] maximum load for static usage
[4] measured on the transducer flange
[5] condensation not allowed

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
+V DC	red	red	6	4	F	D	4 - 5	D - E
0 V	black	black	1	6	A	F	6	F
A+	green	green	3	1	C	A	1	A
A-	/	brown or grey	/	3	/	C	7	G
B+	yellow	yellow	5	2	E	B	2	B
B-	/	orange	/	5	/	E	8	H
Z+	blue	blue	4	/	D	/	3	C
Z-	/	white	/	/	/	/	9	I
⏚	shield	shield	7	7	G	G	10	J

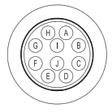
J connector (7 pin)
JIS-C-5432 Size 16
solder side view FV



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

J connector (10 pin)
JIS-C-5432 Size 16
solder side view FV

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



EH 17 - 30 M

INCREMENTAL KIT ENCODER

MAIN FEATURES

Series of miniaturized encoders for integration on small size AC/DC motors, stepper motors or for limited size applications.

- 3 channel encoder (A / B / Z) up to 1024 ppr
- Power supply up to +30 V DC with several electrical interfaces available
- Up to 105 kHz output frequency
- No wear due to absense of bearings
- Easy assembly
- Compact size

ORDERING CODE

EH	30M	500	S	5/30	P	6	X	6	PR	. XXX

SERIES
incremental encoder series EH

MODEL
kit encoder with flange 17M
kit encoder 30M

RESOLUTION
ppr from 50 to 1024
refer to the available pulses list

ZERO PULSE
without zero pulse S
with zero pulse Z

POWER SUPPLY
5 V DC 5
5 ... 30 V DC 5/30

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

BORE DIAMETER
mm 6
(1/4") mm 6,35

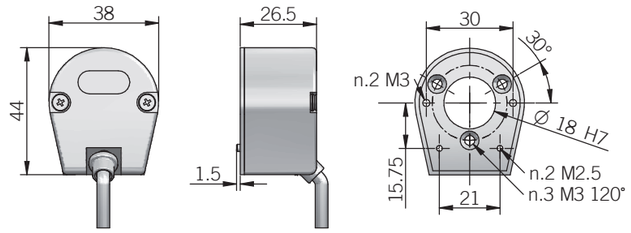
ENCLOSURE RATING
(mod. 17M) IP40 - (mod. 30M) IP 54 X

MAX ROTATION SPEED
6000 rpm 6

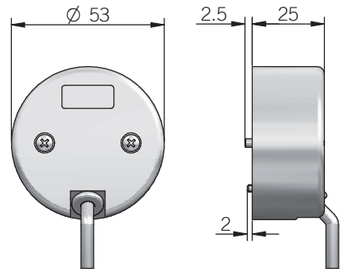
OUTPUT TYPE
radial cable (standard length 0,5 m) PR
preferred cable lengths 1,5 / 2 / 3 / 5 / 10 m, to be added after OUTPUT TYPE (eg. PR5)

VARIANT
custom version XXX

17 M

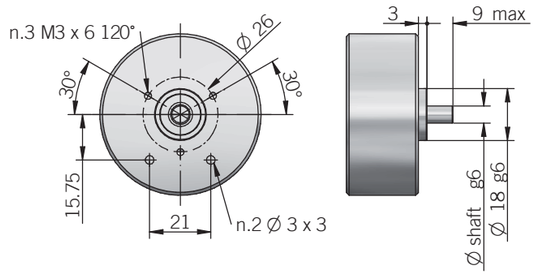


30 M

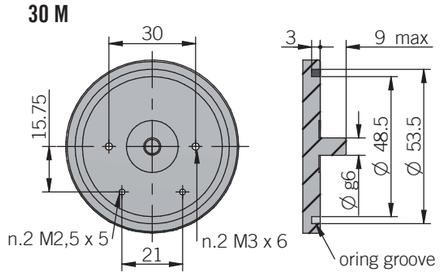


RECOMMENDED INTERFACE FLANGE DESIGN

17 M



30 M



dimensions in mm

ELECTRICAL SPECIFICATIONS

Resolution	from 50 to 1024 ppr
Power supply[1]	5 = 4,5 ... 5,5 V DC 5/30 = 4,5 ... 30 V DC (reverse polarity protection)
Current consumption without load	50 mA (2 channels A / B) 100 mA (3 channels A / B / Z)
Max load current	C / P = 50 mA / channel L = 20 mA / channel
Electrical interface[2]	NPN open collector (AEIC-7273, pull-up max +30 V DC) push-pull / line driver HTL (AEIC-7272) line driver RS-422 (AELT-5000 or equivalent)
Max output frequency	105 kHz
Counting direction	A leads B clockwise (shaft view)
Electromagnetic compatibility	according to 2014/30/EU directive
RoHS	according to 2015/863/EU directive
UL / CSA	certificate n. E212495

CONNECTIONS

Function	Cable P	Cable L / RS
+V DC	red	red
0 V	black	black
A+	green	green
A-	/	brown or grey
B+	yellow	yellow
B-	/	orange
Z+	blue	blue
Z-	/	white
⏚	shield	shield

MECHANICAL SPECIFICATIONS

Bore diameter	ø 6 / 6,35 (1/4") mm
Enclosure rating	mod. 17 IP 40 (IEC 60529) mod. 30 IP 54 (IEC 60529) when properly installed with oring kit (not supplied, please refer to the Accessories)
Max rotation speed	6000 rpm (limited by output frequency)
Shock	50 G, 11 ms (IEC 60068-2-27)
Vibration	10 G, 10 ... 2000 Hz (IEC 60068-2-6)
Moment of inertia	0,5 x 10^{-6} kgm^2 (12 x 10^{-6} lbft^2)
Flange material (mod. 17)	aluminium
Hub material	EN-AW 2011 aluminium
Cover material	PA66 glass fiber reinforced
Shaft radial play allowed	± 0,04 mm
Shaft axial play allowed	± 0,1 mm
Operating temperature[3, 4]	-20° ... +60°C (-4° ... +140°F)
Storage temperature[4]	-25° ... +70°C (-13° ... +158°F)
Weight	50 g (1,76 oz)

[1] as measured at the transducer without cable influences
[2] for further details refer to OUTPUT LEVELS on TECHNICAL BASICS section
[3] measured on the transducer flange
[4] condensation not allowed

RESOLUTIONS

50* - **100** - **200** - 250 - 256 - 360 - 400 - **500** - 512 - **1000** - 1024

*available only without zero pulse
please directly contact our offices for other pulses, preferred resolutions in bold

EH 17 - 30 MH
INCREMENTAL KIT ENCODER

MAIN FEATURES

Series of miniaturized encoders wuth high resolution for integration on small size AC/DC motors, stepper motors or for limited size applications.

- 3 channel encoder (A / B / Z) up to 5000 ppr
- Power supply up to +30 V DC with several electrical interfaces available
- Up to 500 kHz output frequency
- No wear due to absense of bearings
- Easy assembly
- Compact size

ORDERING CODE

EH | 30MH | 2000 | S | 5/30 | P | 6 | X | X | PR | .XXX

SERIES
incremental encoder series EH

TYPE
high resolution kit encoder with flange 17MH
high resolution kit encoder 30MH

RESOLUTION
ppr 2000 / 2048 / 2500 / 4096 / 5000

ZERO PULSE
without zero pulse S
with zero pulse Z

POWER SUPPLY
5 ...30 V DC 5/30

ELECTRICAL INTERFACE
push-pull P
line driver L
power supply 5/30V - output RS-422 RS

BORE DIAMETER
mm 6
(1/4") mm 6,35

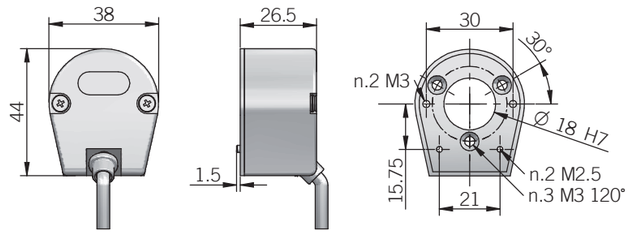
ENCLOSURE RATING
(mod. 17MH) IP40 - (mod. 30MH) IP 54 X

OPTION
to be reported X

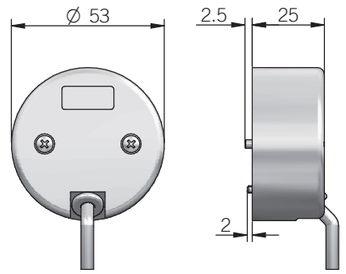
OUTPUT TYPE
radial cable (standard length 0,5 m) PR
preferred cable lengths 1,5 / 2 / 3 / 5 / 10 m, to be added after OUTPUT TYPE (eg. PR5)

VARIANT
custom version XXX

17 MH

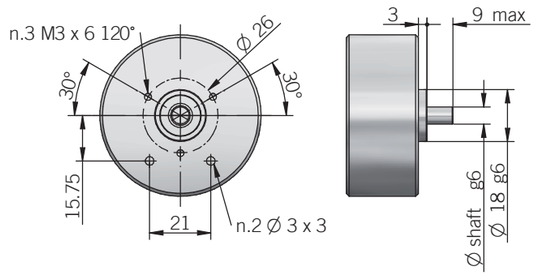


30 MH

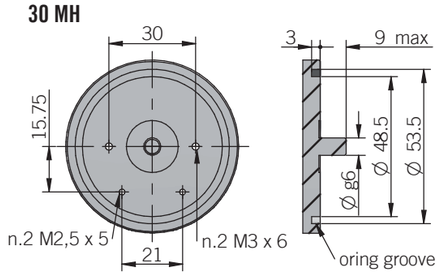


RECOMMENDED INTERFACE FLANGE DESIGN

17 MH



30 MH



dimensions in mm

ELECTRICAL SPECIFICATIONS

Resolution	2000 - 2048 - 2500 - 4096 - 5000 ppr
Power supply[1]	4,5 ... 30 V DC (reverse polarity protection)
Current consumption without load	60 mA max
Max load current	20 mA / channel
Electrical interface[2]	push-pull / line driver HTL (AEIC-7272) line driver RS-422 (AELT-5000 or equivalent)
Max output frequency	500 kHz
Counting direction	A leads B clockwise (shaft view)
Electromagnetic compatibility	according to 2014/30/EU directive
RoHS	according to 2015/863/EU directive
UL / CSA	certificate n. E212495

CONNECTIONS

Function	Cable P	Cable L / RS
+V DC	red	red
0 V	black	black
A+	green	green
A-	/	brown or grey
B+	yellow	yellow
B-	/	orange
Z+	blue	blue
Z-	/	white
⏚	shield	shield

MECHANICAL SPECIFICATIONS

Bore diameter	ø 6 / 6,35 (1/4") mm
Enclosure rating IEC 60529	mod. 17 IP 40 mod. 30 IP 54 when properly installed with oring kit (not supplied, please refer to the Accessories)
Max rotation speed	6000 rpm (limited by output frequency)
Shock	50 G, 11 ms (IEC 60068-2-27)
Vibration	10 G, 10 ... 2000 Hz (IEC 60068-2-6)
Moment of inertia	0,5 x 10^{-6} kgm^2 (12 x 10^{-6} lbft^2)
Flange material (mod. 17)	aluminium
Hub material	EN-AW 2011 aluminium
Cover material	PA66 glass fiber reinforced
Shaft radial play allowed	± 0,04 mm
Shaft axial play allowed	± 0,1 mm
Operating temperature[3, 4]	-20° ... +85°C (-4° ... +185°F)
Storage temperature[4]	-20° ... +85°C (-4° ... +185°F)
Weight	50 g (1,76 oz)

[1] as measured at the transducer without cable influences
[2] for further details refer to OUTPUT LEVELS on TECHNICAL BASICS section
[3] measured on the transducer flange
[4] condensation not allowed

EF 36 K

BLIND HOLLOW SHAFT INCREMENTAL ENCODER

MAIN FEATURES

ø 36 mm encoder series recommended in feedback control systems on AC servomotors, interchangeable with size 15 Resolver in the back of the motor.

- 6 channels encoder with optical generation of "Hall effect phases" (commutation signals)
- Signal transmission by bit parallel bus
- Easy mechanical mounting
- Small dimensions
- Wide range of resolutions available
- High temperature resistance

ORDERING CODE

EF | 36K | 4 | L | 512 | S | 5 | L | 8 | X | 6 | PR | .XXX

SERIES
incremental encoder with Hall phases EF

MODEL
blind hollow shaft with rear fixing 36K

MOTOR POLES
4 poles (2 poles pair) 4
6 poles (3 poles pair) 6
8 poles (4 poles pair) 8

ELECTRICAL INTERFACE FOR COMMUTATION SIGNALS
NPN open collector C
line driver RS-422 L

INCREMENTAL RESOLUTION
ppr from 500 to 1024
refer to the available pulses list

ZERO PULSE
without zero pulse S
with zero pulse Z

POWER SUPPLY
5 V DC 5

ELECTRICAL INTERFACE FOR INCREMENTAL SIGNALS
line driver RS-422 L

BORE DIAMETER
mm 8
(3/8") mm 9,52
mm 10

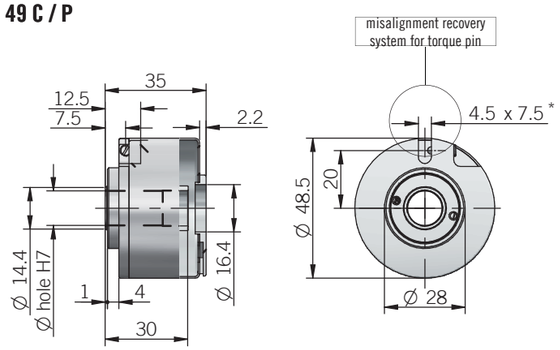
ENCLOSURE RATING
IP 40 X

MAX ROTATION SPEED
6000 rpm 6

OUTPUT TYPE
radial cable (standard length 0,3 m) PR
preferred cable lengths 1,5 / 2 / 3 / 5 / 10 m, to be added after OUTPUT TYPE (eg. PR5)

VARIANT
custom version XXX

49 C / P



* ø 4 mm torque pin min 0.5 mm from bottom end
for size 19 (version 01 or 14) resolver flange please refer to Accessories

dimensions in mm

ELECTRICAL SPECIFICATIONS

Incremental resolution	from 100 to 2048 ppr
Power supply[1]	4,5 ... 5,5 V DC
Current consumption without load	150 mA max
Max load current	20 mA / channel
Electrical interface for incremental signals[2]	line driver RS-422 (AELT-5000 or equivalent)
Electrical interface for Hall phases[2]	NPN open collector (pull-up max +30V DC) line driver RS-422 (AELT-5000 or equivalent)
Max output frequency	150 kHz
Counting direction	A leads B clockwise (shaft view)
Electromagnetic compatibility	according to 2014/30/EU directive
RoHs	according to 2015/863/EU directive
UL / CSA	certificate n. E212495

CONNECTIONS

Function	Cable
+V DC	red
0 V	black
A+	green
B+	yellow
Z+	blue
A-	brown
B-	orange or pink
Z-	white
U+	grey
V+	violet
W+	grey-pink
U-	red-blue
V-	white-green
W-	brown-green
⏚	shield

MECHANICAL SPECIFICATIONS

Bore diameter	ø 6 / 8 / 9,52 (3/8") / 10 / 12 / 12,7 (1/2") mm
Enclosure rating	IP 40 (IEC 60529)
Max rotation speed	6000 rpm
Shock	50 G, 11 ms (IEC 60068-2-27)
Vibration	5 G, 10 ... 500 Hz (IEC 60068-2-6)
Moment of inertia	2 x 10^{-6} kgm^2 (47 x 10^{-6} lbft^2)
Starting torque (at +20°C / +68°F)	< 0,01 Nm (1,42 Ozin)
Bearing stage material	EN-AW 2011 aluminum
Shaft material	1.4305 / AISI 303 stainless steel
Housing material	nickel plated brass
Bearings	n.2 ball bearings
Bearings life	10^9 revolutions
Operating temperature[3, 4]	-20° ... +85 °C (-4° ... +185°F) -10° ... +100°C (+14° ... +212°F) on demand
Storage temperature[4]	-25° ... +85°C (-13° ... +185°F)
Weight	150 g (5,29 oz)

[1] as measured at the transducer without cable influences
[2] for further details refer to OUTPUT LEVELS on TECHNICAL BASICS section
[3] measured on the transducer flange
[4] condensation not allowed

RESOLUTIONS

100 4 / 6 poles
200 4 / 6 poles
500 4 / 6 / 8 poles
512 4 / 6 / 8 poles
1000 4 / 6 / 8 poles
1024 4 / 6 / 8 poles
2000 4 / 6 / 8 poles
2048 4 / 6 / 8 poles

please directly contact our offices for other pulses

EH 50 FA / FP

THROUGH HOLLOW SHAFT INCREMENTAL ENCODER

MAIN FEATURES

ø 50 mm encoder recommended for motor feedback. Suitable for small size motors due to its compact dimensions.

- 3 channel encoder (A / B / Z) up to 1024 ppr
- Higly integrated optical ASIC
- Wide power supply up to +30 V DC
- Through hollow shaft up to 10 mm diameter
- Mounting by coupling flange or stator coupling (front or rear fixing)
- IP 65 as protection grade
- Wide temperature range -40 ... + 100°C

ORDERING CODE

EH 50FP 1024 S 5/30 P 6 X 6 PR .XXX

SERIES
incremental encoder series EH

MODEL
through hollow shaft with front fixing 50FA
through hollow shaft with rear fixing 50FP

RESOLUTION
ppr from 100 to 1024
refer to the available pulses list

ZERO PULSE
without zero pulse S
with zero pulse Z

POWER SUPPLY
5 ... 30 V DC 5/30

ELECTRICAL INTERFACE
push-pull P
line driver L
power supply 5/30V - output RS-422 RS

BORE DIAMETER
mm 6
mm 8
(3/8") mm 9,52
10 mm 10

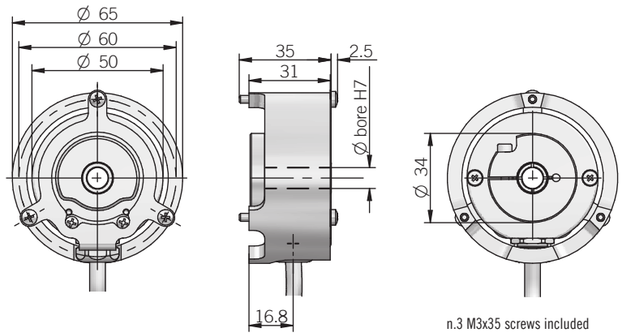
ENCLOSURE RATING
IP 65 X

MAX ROTATION SPEED
6000 rpm 6

OUTPUT TYPE
radial cable (standard length 0,5 m) PR
preferred cable lengths 1,5 / 2 / 3 / 5 / 10 m, to be added after OUTPUT TYPE (eg. PR5)

VARIANT
custom version XXX

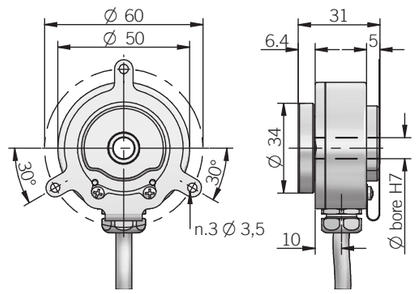
50 FA



n.3 M3x35 screws included

dimensions in mm

50 FP



ELECTRICAL SPECIFICATIONS

Resolution	from 100 to 1024 ppr
Power supply[1]	4,5 ... 30 V DC (with reverse polarity protection)
Power draw without load	800 mW max
Max load current	20 mA / channel
Electrical interface[2]	push-pull / line driver HTL (AEIC-7272) line driver RS-422 (AELT-5000 or equivalent)
Max output frequency	105 kHz
Counting direction	A leads B clockwise (shaft view)
Electromagnetic compatibility	according to 2014/30/EU directive
RoHS	according to 2015/863/EU directive
UL / CSA	certificate n. E212495

RESOLUTIONS

100 - 200 - 256 - **360** - 400 - 500 - **1000** - **1024** ppr

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

CONNECTIONS

Function	Cable P	Cable L / RS
+V DC	red	red
0 V	black	black
A+	green	green
A-	/	brown or grey
B+	yellow	yellow
B-	/	orange
Z+	blue	blue
Z-	/	white
⏚	shield	shield

MECHANICAL SPECIFICATIONS

Bore diameter	ø 6 / 8 / 9,52 (3/8") / 10 mm
Enclosure rating	IP 65 (IEC 60529)
Max rotation speed	6000 rpm
Shock	50 G, 11 ms (IEC 60068-2-27)
Vibration	10 G, 10 ... 2000 Hz (IEC 60068-2-6)
Moment of inertia	0,5 x 10^{-6} kgm² (12 x 10^{-6} lbft²)
Starting torque (at +20°C / +68°F)	< 0,01 Nm (1,42 Ozin)
Bearing stage material	EN-AW 2011 aluminum
Shaft material	1.4305 / AISI 303 stainless steel
Housing material	EN-AW 2011 aluminum
Bearings	n.2 ball bearings
Bearings life	10^9 revolutions
Operating temperature[3, 4]	-40° ... +100 °C (-40° ... +212°F)
Storage temperature[4]	-40° ... +100 °C (-40° ... +212°F)
Weight	150 g (5,29 oz) mod.FP 200 g (7,05 oz) mod.FA

[1] as measured at the transducer without cable influences
[2] for further details refer to OUTPUT LEVELS on TECHNICAL BASICS section
[3] measured on the transducer flange
[4] condensation not allowed

EH 53 A / B

BLIND HOLLOW SHAFT INCREMENTAL ENCODER

MAIN FEATURES

Encoder series for direct mounting on motors; integrated elastic coupling allows radial and axial shaft play.

- 3 channel encoder (A / B / Z) up to 1024 ppr
- Power supply up to +24 V DC with several electrical interfaces available
- Up to 150 kHz output frequency
- Cable outuput, connector available on cable end
- Up to 10 mm bore diameter
- Integrated elastic couplig

ORDERING CODE

EH	53A	500	S	8/24	P	8	X	6	PR.N	XXX

SERIES
incremental encoder series EH

MODEL
adjustable flange model 53A
adjustable flange model 53B

RESOLUTION
ppr from 50 to 1024
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
8 ... 24 V DC 8/24

ELECTRICAL INTERFACE
NPN open collector C
push-pull P
line driver L

BORE DIAMETER
mm 6
mm 8
mm 10

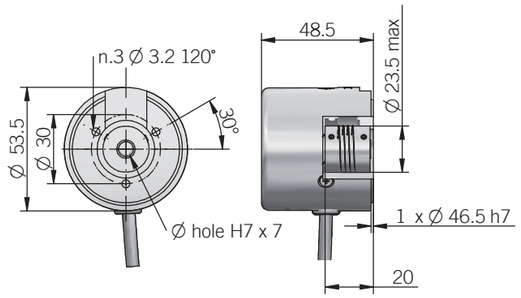
ENCLOSURE RATING
IP 54 X

MAX ROTATION SPEED
6000 rpm 6

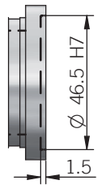
OUTPUT TYPE
radial cable (standard length 0,5 m) PR.N
preferred cable lengths 1,5 / 2 / 3 / 5 / 10 m, to be added after OUTPUT TYPE (eg. PR5)

VARIANT
custom version XXX

53 A



53 B interface



dimensions in mm

ELECTRICAL SPECIFICATIONS

Resolution	from 100 to 1024 ppr
Power supply[1]	5 = 4,5 ... 5,5 V DC 8/24 = 7,6 ... 25,2 V DC (reverse polarity protection)
Current consumption without load	100 mA max
Max load current	C / P = 50 mA / channel L = 20 mA / channel
Electrical interface[2]	NPN open collector (pull-up max +30V DC) push-pull / line driver HTL (AEIC-7272) line driver RS-422 (AELT-5000 or equivalent)
Max output frequency	150 kHz
Counting direction	A leads B clockwise (shaft view)
Electromagnetic compatibility	according to 2014/30/EU directive
RoHS	according to 2015/863/EU directive
UL / CSA	certificate n. E212495

CONNECTIONS

Function	Cable C / P	Cable L
+V DC	red	red
0 V	black	black
A+	green	green
A-	/	brown or grey
B+	yellow	yellow
B-	/	orange
Z+	blue	blue
Z-	/	white
⏚	shield	shield

MECHANICAL SPECIFICATIONS

Bore diameter	ø 6 / 8 / 10 mm
Enclosure rating	IP 54 (IEC 60529)
Max rotation speed	6000 rpm
Shock	50 G, 11 ms (IEC 60068-2-27)
Vibration	10 G, 10 ... 2000 Hz (IEC 60068-2-6)
Moment of inertia	1 x 10^{-6} kgm^2 (24 x 10^{-6} lbft^2)
Starting torque (at +20°C / +68°F)	< 0,01 Nm (1,42 Ozin)
Bearing stage material	EN-AW 2011 aluminum
Shaft material	1.4305 / AISI 303 stainless steel
Housing material	PA66 glass fiber reinforced
Bearings	n.2 ball bearings
Bearings life	10^9 revolutions
Operating temperature[3, 4]	-10° ... +60°C (+14° ... +140°F)
Storage temperature[4]	-25° ... +70°C (-13° ... +158°F)
Weight	150 g (5,29 oz)

[1] as measured at the transducer without cable influences
[2] for further details refer to OUTPUT LEVELS on TECHNICAL BASICS section
[3] measured on the transducer flange
[4] condensation not allowed

RESOLUTIONS

50 - 100 - 120 - 125 - 128 - 150 - 180 - 200 - 250 - 256 - 300 - 360 - 400 - 500 - 512 - 600 - 720 - 1000 - 1024

please directly contact our offices for other pulses

EL - ER 53 A / B

BLIND HOLLOW SHAFT INCREMENTAL ENCODER

MAIN FEATURES

Encoder series for direct mounting on motors; integrated elastic coupling allows radial and axial shaft play.

- 3 channel encoder (A / B / Z) up to 10000 ppr
- Power supply up to +28 V DC with several electrical interfaces available
- Up to 500 kHz output frequency
- Cable or connector output
- Available with metal cover for heavy duty applications
- Integrated elastic couplig up to 10 mm bore diameter

ORDERING CODE

ER | 53A | M* | 500 | S | 5/28 | P | 8 | X | 6 | P | R | XXX

SERIES
incremental encoder series EL
incremental encoder series ER

MODEL
adjustable flange model 53A
adjustable flange model 53B

METAL COVER
* add for metal cover M

RESOLUTION
ppr from 1 to 10000
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 5/28V - output RS-422 RS

BORE DIAMETER
mm 6
mm 8
mm 10

ENCLOSURE RATING
IP 54 X
IP 64 S

MAX ROTATION SPEED
(IP 64) 3000 rpm 3
(IP 64) 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 connector M
JIS-C-5432 connector J
M12 connector M12
M23 connector H
IP40 IEC 60130-9 connector C
female connector included, without female please add 162 as variant code

DIRECTION TYPE
axial A
radial R

VARIANT
custom version XXX

EH 80 C / P / PG / K

BLIND / THROUGH HOLLOW SHAFT INCREMENTAL ENCODER

MAIN FEATURES

ø 80 mm encoder series recommended in feedback control systems on AC servomotors.

- 3 channel encoder (A / B / Z) up to 2048 ppr
- Power supply up to +30 V DC with several electric interfaces available
- Up to 105 kHz output frequency
- Cable output, connector available on cable end
- Through or blind hollow shaft diameter up to 15 mm
- Shaft fixing by grain or collar clamping

ORDERING CODE EH 80C 500 S 5 L 8 X 6 PR . XXX

SERIES
incremental encoder EH

MODEL
blind hollow shaft 80C
blind hollow shaft with rear fixing 80K
through hollow shaft 80P
through hollow shaft with collar clamping 80PG

RESOLUTION
ppr from 1 to 2048
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 5/28V - output RS-422 RS

BORE DIAMETER
(mod. C - P) mm 8
mm 10
(mod. C - P) mm 12
(mod. C - P - PG) mm 14
(mod. C - P - PG) mm 15

ENCLOSURE RATING
IP 64 X

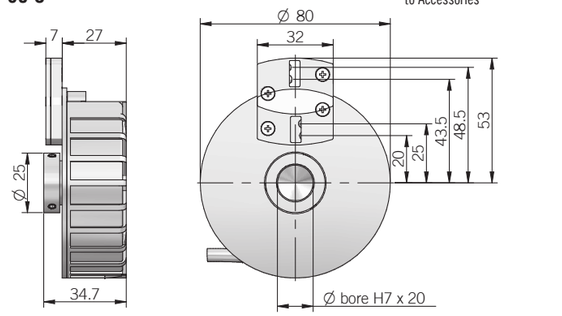
MAX ROTATION SPEED
(mod. P - PG) 3000 rpm 3
(mod. C - K) 6000 rpm 6

OUTPUT TYPE
radial (standard length 0,3 m) PR
preferred cable lengths 1,5 / 2 / 3 / 5 / 10 m, to be added after OUTPUT TYPE (eg. PR5)

VARIANT
custom version XXX

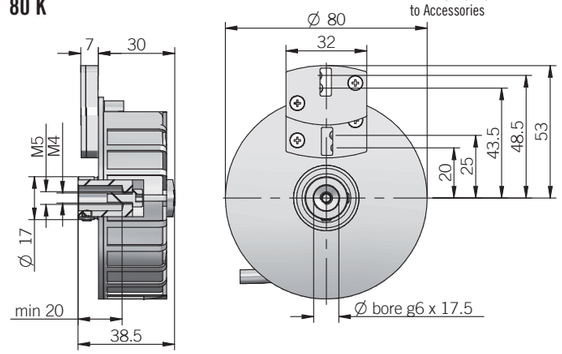
80 C

for torque pin please refer to Accessories



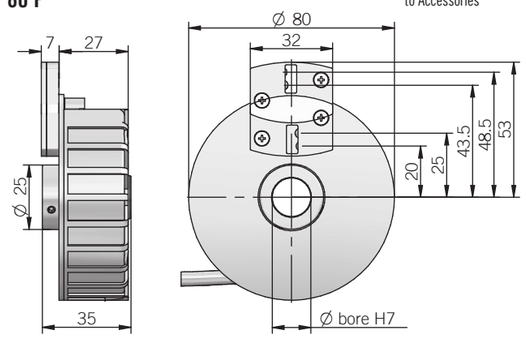
80 K

for torque pin please refer to Accessories



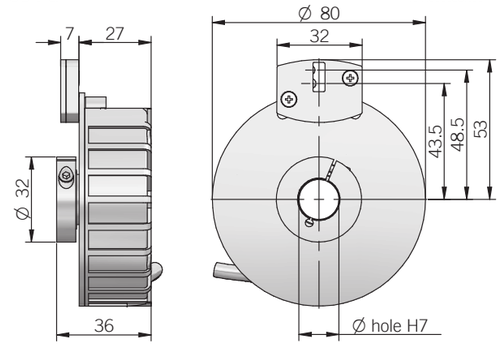
80 P

for torque pin please refer to Accessories



80 PG

for torque pin please refer to Accessories



dimensions in mm

ELECTRICAL SPECIFICATIONS

Resolution	from 1 to 2048 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	800 mW 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) line driver RS-422 (AELT-5000 or equivalent)
Max output frequency	105 kHz
Counting direction	A leads B clockwise (shaft view)
Electromagnetic compatibility	according to 2014/30/EU directive
RoHS	according to 2015/863/EU directive
UL / CSA	certificate n. E212495

MECHANICAL SPECIFICATIONS

Bore diameter	ø 8 / 10 / 12 / 14 / 15 mm
Enclosure rating	IP 64 (IEC 60529)
Max rotation speed	3000 rpm (mod.P / PG) 6000 rpm (mod.C / K)
Shock	50 G, 11 ms (IEC 60068-2-27)
Vibration	20 G, 10 ... 2000 Hz (IEC 60068-2-6)
Moment of inertia	4 x 10^{-6} kgm^2 (95 x 10^{-6} lbft^2)
Starting torque (at +20°C / +68°F)	< 0,04 Nm (5,66 Ozin)
Bearing stage material	PA66 glass fiber reinforced
Shaft material	EN-AW 2011 aluminum (mod. C / K) 1.4305 / AISI 303 stainless steel (mod.P / PG)
Housing material	PA66 glass fiber reinforced
Bearings	n.2 ball bearings
Bearings life	10^9 revolutions
Operating temperature[3, 4]	-20° ... +85 °C (-4° ... +185°F) -20° ... +100°C (-4° ... +212°F) on demand
Storage temperature[4]	-25° ... +85 °C (-13° ... +185°F)
Weight	250 g (8,82 oz)

[1] as measured at the transducer without cable influences
[2] for further details refer to OUTPUT LEVELS on TECHNICAL BASICS section
[3] measured on the transducer flange
[4] condensation not allowed

CONNECTIONS

Function	Cable C / P	Cable L / RS
+V DC	red	red
0 V	black	black
A+	green	green
A-	/	brown or grey
B+	yellow	yellow
B-	/	orange
Z+	blue	blue
Z-	/	white
⏚	shield	shield

RESOLUTIONS

100* - **200** - 250 - 256 - 360 - 400 - **500** - 512 - 600 - **1000** - **1024** - **2000** - **2048**

*available without zero pulse
please directly contact our offices for other pulses, preferred resolutions in bold

EH - EL 88 P

THROUGH HOLLOW SHAFT INCREMENTAL ENCODER

MAIN FEATURES

ø 88 mm through hollow shaft encoder designed for middle size asyncronous motors.

- 3 channel encoder (A / B / Z) up to 2500 ppr
- Power supply up to +28 V DC with several electrical interfaces available
- Up to 105 kHz output frequency
- Cable output, connector available on cable end
- Sturdy mechanic
- 25 or 30 mm bore diameter, others on request
- Shaft fixing with grub screws

ORDERING CODE

EH	88P	1024	S	5/28	P	30	S	3	PR	. XXX

SERIES
incremental encoder series EH
incremental encoder series EL

MODEL
through hollow shaft with torque stop slot 88P

RESOLUTION
(mod. EH) max ppr 2500
(mod. EL) max ppr 2048
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
(with L electrical interface) 8 ... 24 V DC 8/24
5 ... 28 V DC 5/28

ELECTRICAL INTERFACE
NPN open collector C
push-pull P
line driver L
(mod. EH) power supply 5/28V - output RS-422 RS

SHAFT DIAMETER
mm 25
mm 30
please directly contact our offices for other diameters

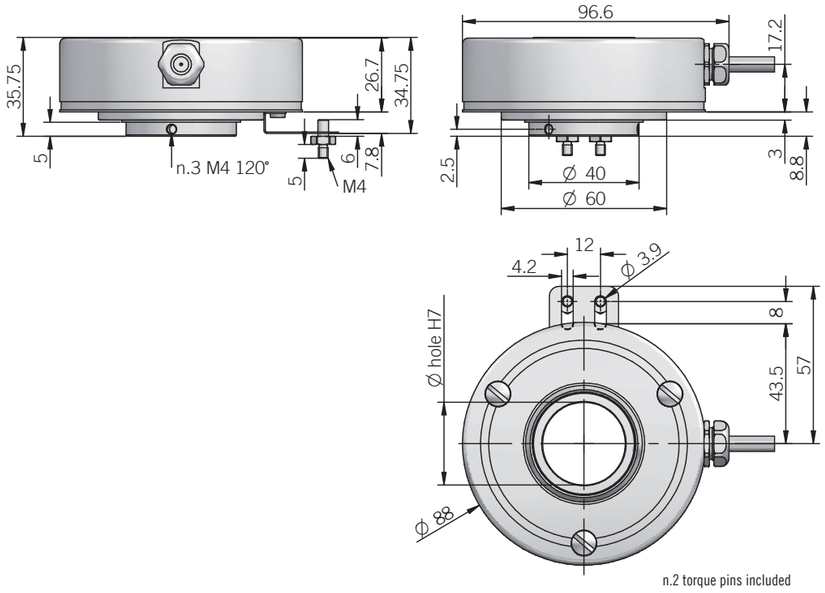
ENCLOSURE RATING
IP 65 S

MAX ROTATION SPEED
3000 rpm 3

OUTPUT TYPE
radial cable (standard length 0,5 m) PR
preferred cable lengths 1,5 / 2 / 3 / 5 / 10 m, to be added after OUTPUT TYPE (eg. PR5)

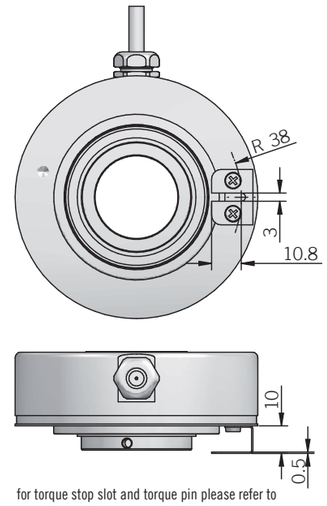
VARIANT
custom version XXX

88 P



n.2 torque pins included

OPTIONAL TORQUE STOP SLOT



for torque stop slot and torque pin please refer to Accessories

dimensions in mm

ELECTRICAL SPECIFICATIONS

Resolution	from 250 to 2500 ppr (EH series) from 2 to 2048 ppr (EL series)
Power supply[1]	5 = 4,5 ... 5,5 V DC 5/28 = 4,75 ... 29,4 V DC 8/24 = 7,6 ... 25,2 (reverse polarity protection)
Current consumption without load	100 mA max
Max load current	C / P = 50 mA / channel L / RS = 20 mA / channel
Electrical interface[2]	NPN open collector (pullup max +30V DC) push-pull / line driver HTL (AEIC-7272) line driver RS-422 (AELT-5000 or equivalent)
Max output frequency	105 kHz
Counting direction	A leads B clockwise (shaft view)
Electromagnetic compatibility	according to 2014/30/EU directive
RoHS	according to 2015/863/EU directive
UL / CSA	certificate n. E212495

CONNECTIONS

Function	Cable C / P	Cable L / RS
+V DC	red	red
0 V	black	black
A+	green	green
A-	/	brown or grey
B+	yellow	yellow
B-	/	orange
Z+	blue	blue
Z-	/	white
⏚	shield	shield

MECHANICAL SPECIFICATIONS

Shaft diameter	ø 25 / 30 mm
Enclosure rating	IP 65 (IEC 60529)
Max rotation speed	3000 rpm
Shock	50 G, 11 ms (IEC 60068-2-27)
Vibration	20 G, 10 ... 2000 Hz (IEC 60068-2-6)
Moment of inertia	45 x 10^{-6} kgm^2 (10,68 x 10^{-4} lbft^2)
Starting torque (at +20°C / +68°F)	< 0,1 Nm (14,16 Ozin)
Bearing stage material	EN-AW 2011 aluminum
Shaft material	1.4305 / AISI 303 stainless steel
Housing material	EN-AW 2011 aluminum
Bearings	n.2 ball bearings
Bearings life	10^9 revolutions
Operating temperature[3, 4]	-10° ... +70°C (+14° ... +158°F)
Storage temperature[4]	-25° ... +85°C (-13° ... +185°F)
Weight	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] measured on the transducer flange
[4] condensation not allowed

EH SERIES RESOLUTIONS

250 - 256 - 500 - **512** - 700 - 720 - **1000** - **1024** - 1440 - 2500

EL SERIES RESOLUTIONS

2 - 5 - 90 - 100 - 200 - **360** - 400 - 600 - 900 - **2000** - 2048

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

EH 88 PE / PET

THROUGH HOLLOW SHAFT INCREMENTAL ENCODER

MAIN FEATURES

Cost effective encoder for asynchronous motors, suitable for elevators and stage machinery.

- 3 channel encoder (A / B / Z) up to 2500 ppr
- Power supply up to +28 V DC with several electrical interfaces available
- Up to 105 kHz output frequency
- Cable output, connector available on cable end
- Sturdy mechanic
- Up to 40 mm bore diameter
- Shaft fixing by collar clamping

ORDERING CODE

EH | 88PE | 1024 | S | 5/28 | P | 30 | X | 3 | PR | .XXX

SERIES
incremental encoder series EH

MODEL
through hollow shaft with torque stop slot 88PE
through hollow shaft for torque arm fixing 88PET
please refer to Accessories for torque arm

RESOLUTION
ppr from 500 to 2500
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
push-pull P
line driver L
power supply 5/28V - output RS-422 RS

BORE DIAMETER
mm 25
mm 30
(mod. PE) mm 35
(mod. PE) mm 38
(mod. PE) mm 40

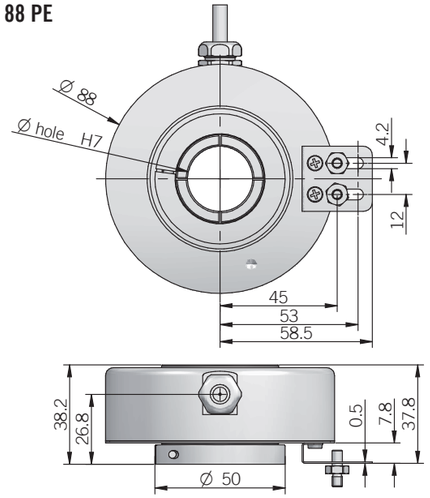
ENCLOSURE RATING
IP 54 X

MAX ROTATION SPEED
3000 rpm 3

OUTPUT TYPE
radial cable (standard length 0,5 m) PR
preferred cable lengths 1,5 / 2 / 3 / 5 / 10 m, to be added after OUTPUT TYPE (eg. PR5)

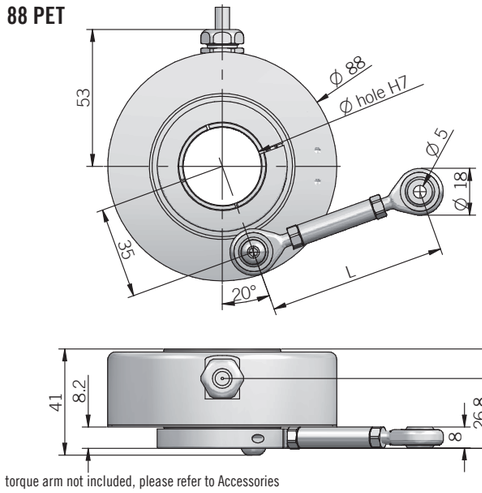
VARIANT
custom version XXX

88 PE



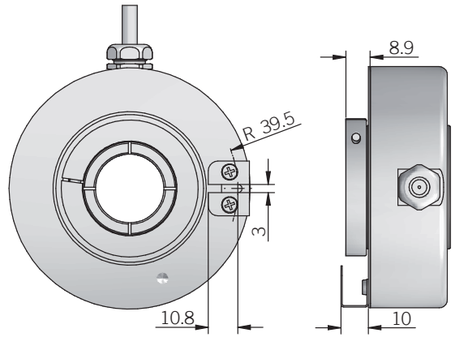
for torque pin please refer to Accessories

88 PET



torque arm not included, please refer to Accessories

OPTIONAL TORQUE STOP SLOT



for torque stop slot and torque pin please refer to Accessories

dimensions in mm

ELECTRICAL SPECIFICATIONS

Resolution	from 500 to 2500 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	800 mW
Max load current	20 mA / channel
Electrical interface[2]	push-pull / line driver HTL (AEIC-7272) line driver RS-422 (AELT-5000 or equivalent)
Max output frequency	105 kHz
Counting direction	A leads B clockwise (shaft view)
Electromagnetic compatibility	according to 2014/30/EU directive
RoHS	according to 2015/863/EU directive
UL / CSA	certificate n. E212495

MECHANICAL SPECIFICATIONS

Bore diameter	ø 25 / 30 / 35 / 38 / 40 mm
Enclosure rating	IP 54 (IEC 60529)
Max rotation speed	3000 rpm
Shock	50 G, 11 ms (IEC 60068-2-27)
Vibration	10 G, 10 ... 2000 Hz (IEC 60068-2-6)
Moment of inertia	45 x 10^{-6} kgm² (10,68 x 10^{-4} lbft²)
Starting torque (at +20°C / +68°F)	< 0,02 Nm (2,83 Ozin)
Bearing stage material	EN-AW 2011 aluminum
Shaft material	up to ø 38 mm: EN-AW 2011 aluminum ø 40 mm: 1.4305/AISI 303 stainless steel
Housing material	EN-AW 2011 aluminum
Bearings	n.2 ball bearings
Bearings life	10^9 revolutions
Operating temperature[3, 4]	-30° ... +85°C (-22° ... +185°F)
Storage temperature[4]	-30° ... +85°C (-22° ... +185°F)
Weight	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] measured on the transducer flange
[4] condensation not allowed

RESOLUTIONS

500 - 512 - 720 - **1000** - **1024** - 1440 - 2500

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

CONNECTIONS

Function	Cable P	Cable L / RS
+V DC	red	red
0 V	black	black
A+	green	green
A-	/	brown or grey
B+	yellow	yellow
B-	/	orange
Z+	blue	blue
Z-	/	white
⏚	shield	shield