

## MA420 - SERIES



### HEAVY DUTY REDUNDANT ENCODER Ø 115 MM

*Encoder with EURO-flange B10 in stainless steel AISI 316*

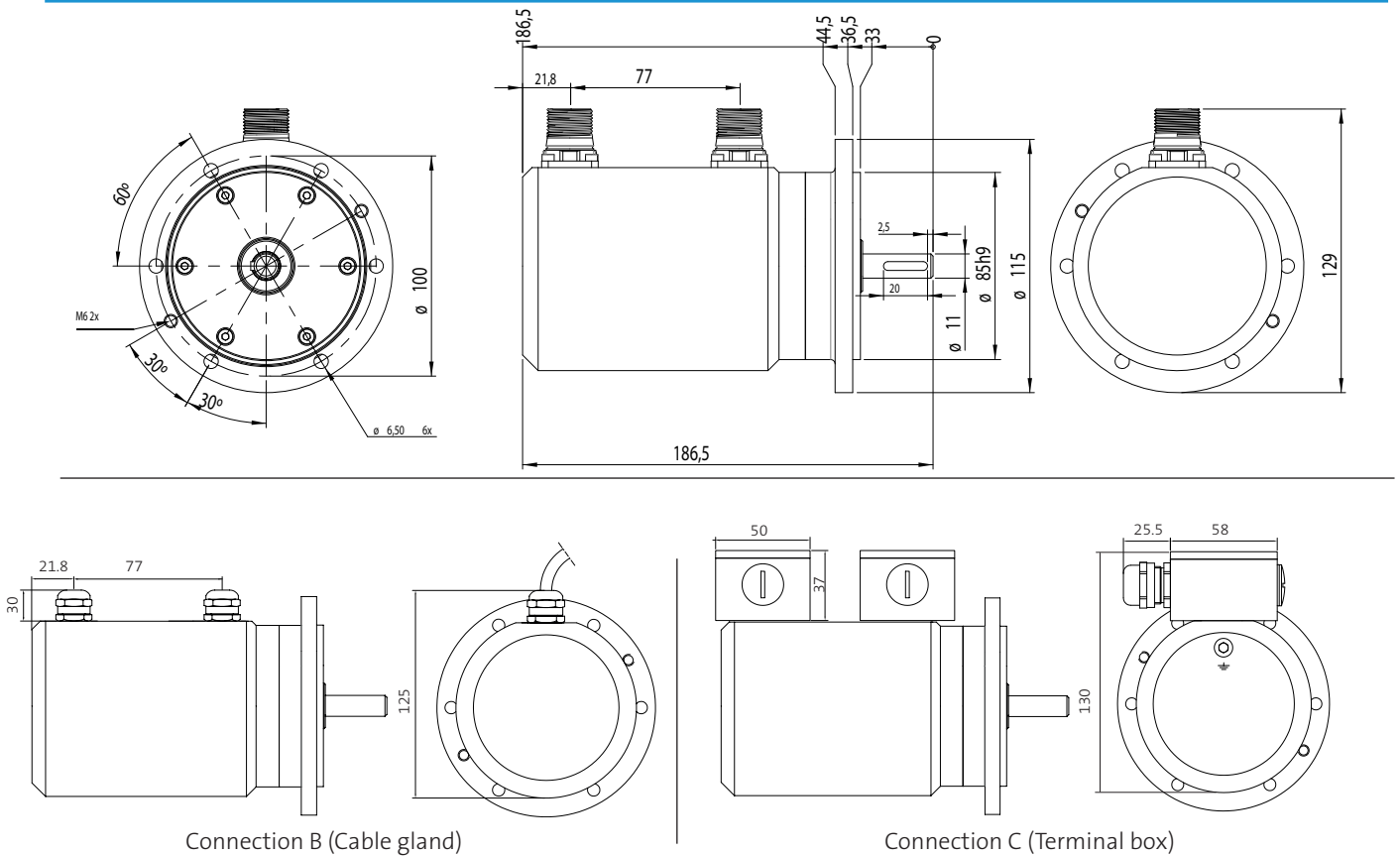
- Offshore and salt water firm
- Ø 115 mm, stainless steel AISI 316
- Ø 11 mm shaft with key, stainless steel 1.4057
- Enlarged sturdy bearings
- Combination of incremental/absolute redundant version
  
- Short circuit and reversed polarity proof
- Dust and splash proof IP67
  
- Option: Anodized aluminium enclosure



*Flexible and durable  
encoder for demanding  
applications*



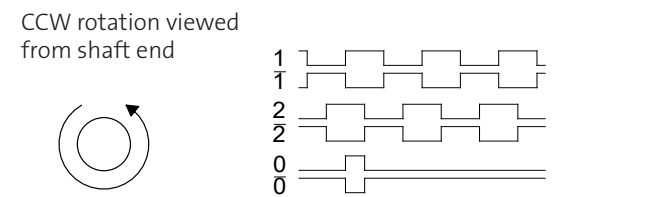
Conforms to european EMC directive  
89/336/EEC standards:  
EN61000-6-4 emission in industrial environments  
EN61000-6-2 immunity in industrial environments



## ELECTRICAL SPECIFICATIONS, INCREMENTAL ENCODER

Electronic option	T (TTL)	H (HTL)
Supply voltage	5Vdc	5–30 Vdc (SELV)
Current consumption	Max 40 mA without load	
Output circuit	Linedriver RS422A compatible	
Low level output volt.	Max <0,5 V at 20 mA load and 20°C	
High level output volt.	Min >Vcc-1V at 20mA load and 20°C	
Short circuit protected	Yes	
Polarity protected	Yes	
Transient protected	Yes	
Max load	70 mA	

## OUTPUT SIGNALS, STANDARD



## MECHANICAL SPECIFICATION

Housing	Stainless Steel AISI 316
Shaft	Stainless Steel 1.4057
Sealing	IP67 dust and splash proof
Bearings	Permanently greased
Bearing load at	1 000 rpm
Radial	<350 N
Axial	<250 N
Max rpm	12000
Weight	5,5 kg (AISI316), 2,2 kg (Aluminium)

## SIGNAL ACCURACY

Dividing error max	±50 el°
Channel separation	90 ±20 el°
Max frequency	300 kHz
Operating temperature	-40° .. +80°C (Optional +100°C)

## CONNECTION

A	Radial 12-pin M23 Male Connector, CCW
B	Radial cable, 5m length
C	Terminal box for 6mm-12mm cable

## FUNCTION

Signal	A (M23)	B(Color)	C (Terminal)
1	5	Yellow	4
2	8	Green	6
0	3	Brown	8
1 inv.	6	Grey	5
2 inv.	1	White	7
0 inv.	4	Violet	9
+E V	12	Red	1
0 V	10	Blue	2
+E V sense	2	-	-
0 V sense	11	-	-
Gnd	Chassis	Chassis	Chassis

## MATING CONNECTOR

12-pin M23 Female Connector, CW



Skogsvägen 1, SE-645 34 Strängnäs, Sweden  
 Tel: +46 152 33 11 90 Fax: +46 152 33 11 91  
 E-mail: info@emetaencoders.com  
 www.emetaencoders.com

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## ELECTRICAL SPECIFICATIONS

Supply Voltage	4,5–30 Vdc (SELV)
Clock Input	RS-422 Compatible via Optocoupler
Output Circuit	Linedriver RS422A compatible
Resolution Single Turn	12, 13 or 16 bit
Resolution Multi Turn	12, 13 or 16 bit
Revolutions Multi Turn	12 or 14 bit
Multi Turn Technology	Mechanical gear
Clock Frequency	100 kHz to 2MHz
Single-Turn Accuracy	±½LSB (up to 12 bit)
Cycle Time	<25us
Power Consumption	Max. 1,5W
EMC	Emission According to EN61000-6-4:2007-09 According to EN61000-6-2:2005
Weight	5,5 kg (AISI316), 2,2 kg (Alu)

## CONNECTION

A	Radial 16-pin M23 Male, CW
B	Radial cable, 5m length
C	Terminal box for ø6mm-ø12mm cable

## FUNCTION

Signal	A (M23)	B (Cable)	C (Terminal)
<b>Clock +</b>	2	Green	2
<b>Clock -</b>	1	Yellow	3
<b>Data +</b>	3	Gray	4
<b>Data -</b>	4	Pink	5
<b>Direction</b>	8	Red	6
<b>Preset</b>	9	Blue	7
<b>A</b>	5	Black	9
<b>A inv.</b>	6	Violet	10
<b>B</b>	7	Gray-Pink	11
<b>B inv.</b>	10	Red-Blue	12
<b>Z</b>	13	White-Green	13
<b>Z inv.</b>	14	Brown-Green	14
<b>+E V</b>	11	Brown	1
<b>0 V</b>	12	White	16
<b>Gnd</b>	Chassis	Shield	Chassis

## ORDERING KEY

Model - Material - Connection - Encoder A - Encoder B

Model	MA420
Material	S Stainless Steel A Aluminium
Connection	A M23 Male Connector B Radial, Cable 5m C Terminal box (ø6mm-ø12mm cable)
Encoder A	xxxxx Type definition, as below
Encoder B	YYYYY Type definition, as below

## TYPE DEFINITION (INCREMENTAL)

Electronics	T TTL H HTL
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Resolution	1..2500
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## TYPE DEFINITION (ABSOLUTE)

Interface	S SSI
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Resolution		
Multi Turn	YY	YY bit (00 indicates single turn)
Single Turn	ZZ	ZZ bit

Code type	B Binary G Gray
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Incremental type	0 No incremental signals 5 TTL 6 HTL
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Pulse rate incr.	0 No incremental signals A 1024 ppr B 2048 ppr
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## Sample ordering key

MA420-SA- T1024-H2048 (2 x incremental)

MA420-AA- H2048-S1312G00 (1x incremental, 1x absolute)