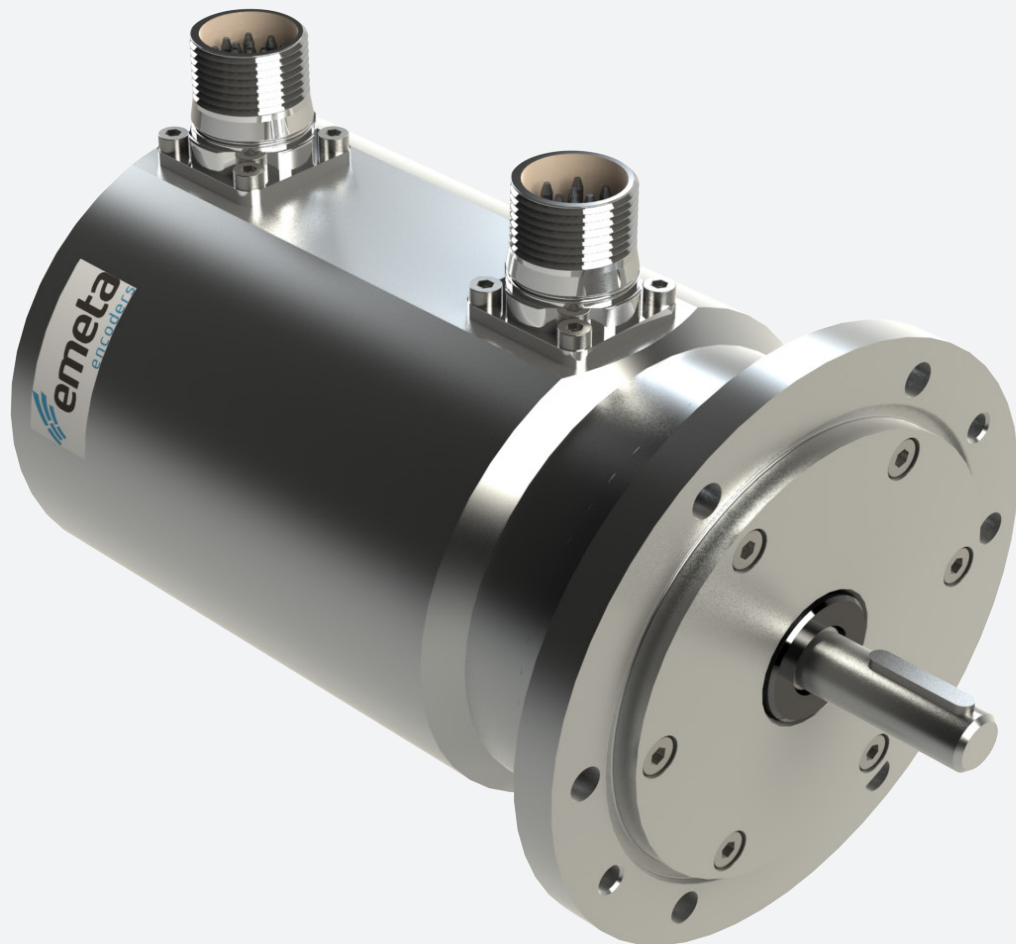


MA420 - SERIES



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

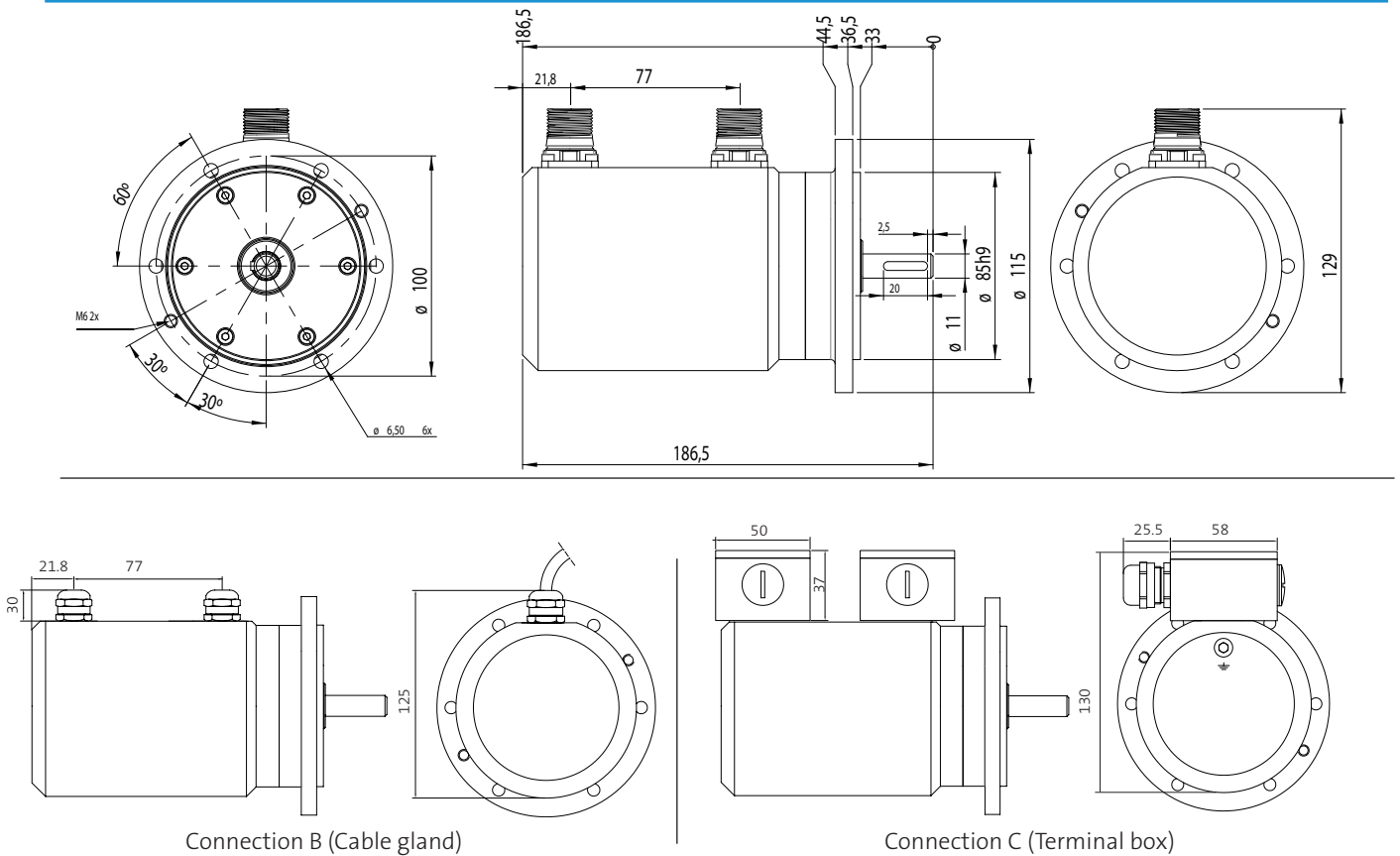
The logo for emeta encoders, featuring a stylized blue wave icon to the left of the text 'emeta encoders'.

*Flexible and durable
encoder for demanding
applications*

 File E342441



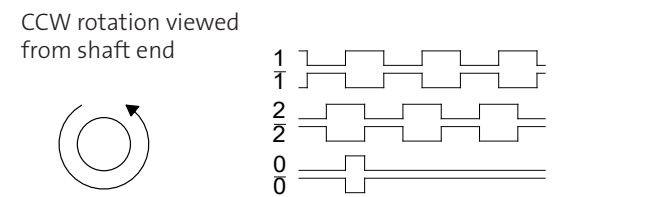
Conforms to european EMC directive
89/336/EEC standards:
EN61000-6-4 emission in industrial environments
EN61000-6-2 immunity in industrial environments



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 ø6mm-ø12mm 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



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 E-mail: info@emetaencoders.com
 www.emetaencoders.com

Rev.1 2019-06-20. Specifications in this datasheet is subject to change without prior notice.

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)
Clock +	2	Green	2
Clock -	1	Yellow	3
Data +	3	Gray	4
Data -	4	Pink	5
Direction	8	Red	6
Preset	9	Blue	7
A	5	Black	9
A inv.	6	Violet	10
B	7	Gray-Pink	11
B inv.	10	Red-Blue	12
Z	13	White-Green	13
Z inv.	14	Brown-Green	14
+E V	11	Brown	1
0 V	12	White	16
Gnd	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

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

Incremental type	0	No incremental signals
	5	TTL
	6	HTL

Pulse rate incr.	0	No incremental signals
	A	1024 ppr
	B	2048 ppr

Sample ordering key

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

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