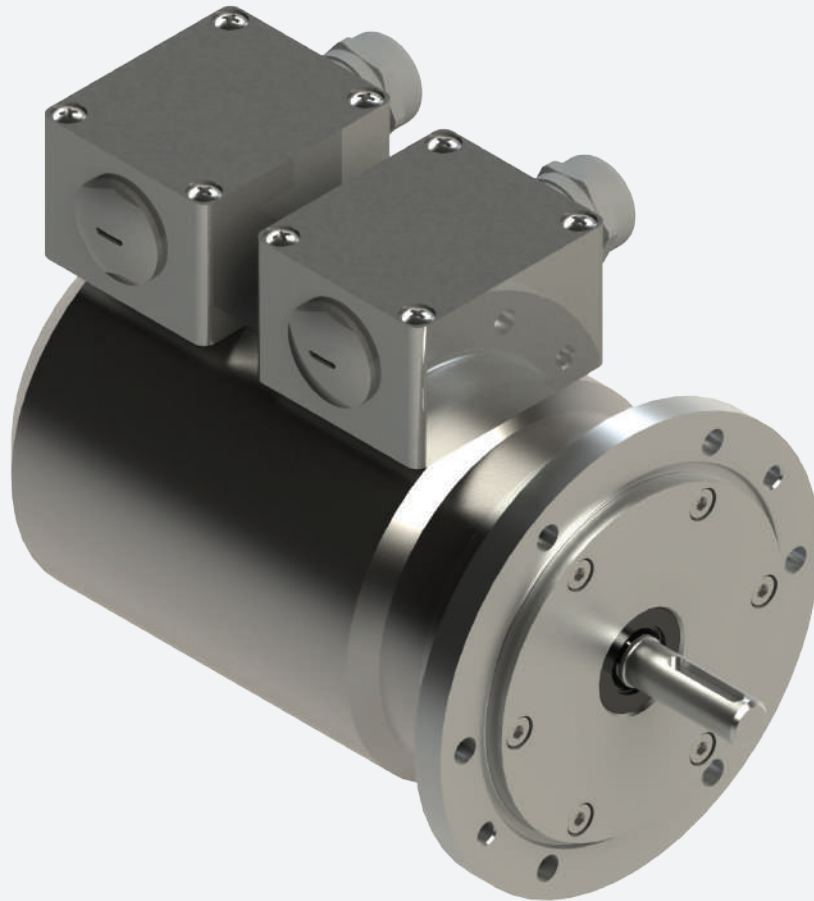


MA450 - SERIES



HEAVY DUTY ENCODER WITH OVERSPEED Ø 115 MM

Encoder with EURO-flange B10 in stainless steel AISI 316

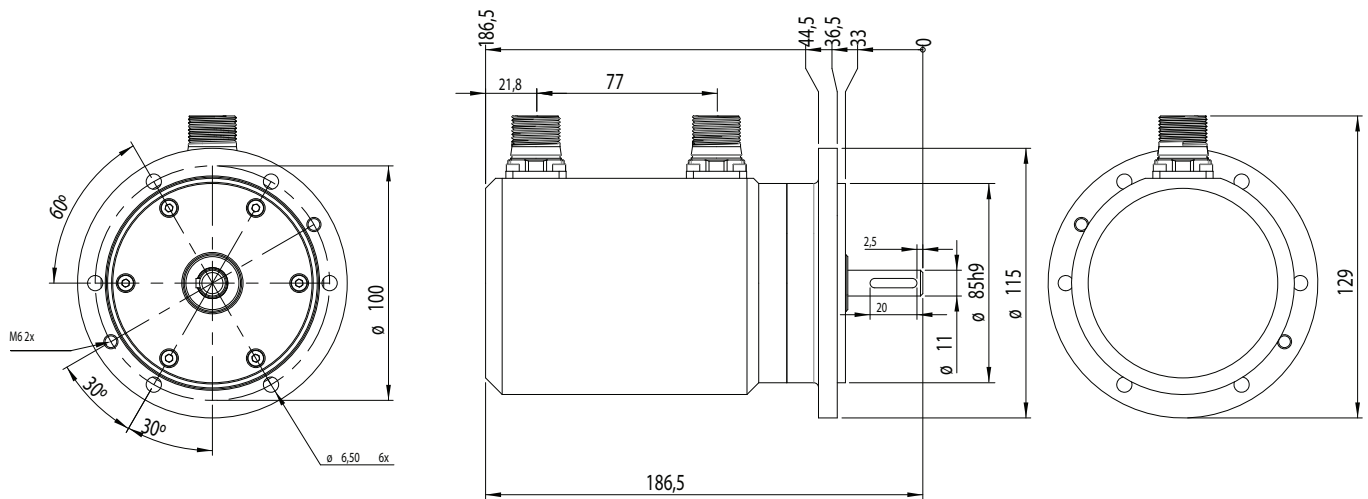
- Offshore and salt water firm
- Fixed switching speed based on a centrifugal principle
- Switch with insulated make and break contact
- Enlarged sturdy bearings
- Combination of incremental encoder + overspeed switch
- Short circuit and reversed polarity proof
- Dust and splash proof IP67
- Optional 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

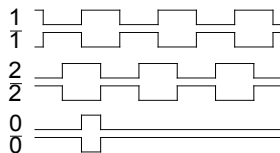


ELECTRICAL SPECIFICATIONS, INCREMENTAL ENCODER

Electronic option	T (TTL)	H (HTL)
Supply voltage	5 Vdc	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

CCW rotation viewed from shaft end



SIGNAL ACCURACY

Dividing error max	±50 el°
Channel separation	90 ± 25 el°
Max frequency	300 kHz
Operating temperature	-40° .. +80°C

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	3 000 (8 000)
Vibration	20g 20-2000 Hz
Shock	200g at 11 ms
Weight	5,5 kg

CONNECTION

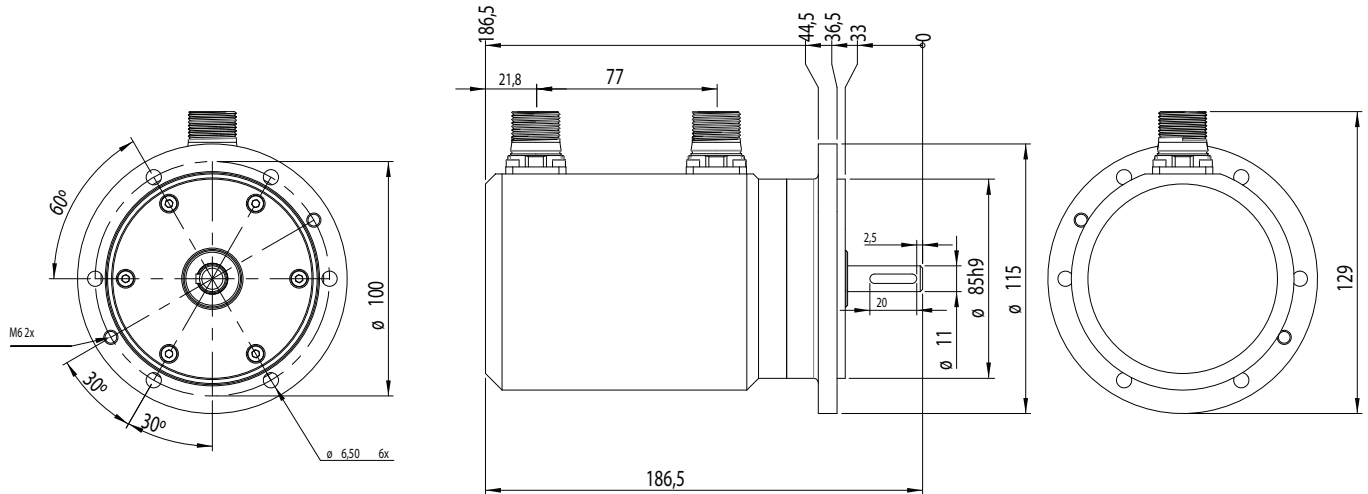
A	M23 Male Connector, CCW, Radial 12-pin
C	Terminal box for ø6 mm - ø12 mm cable

FUNCTION

Signal	A (M23)	C (Terminal)
1	5	4
2	8	6
0	3	8
1 inv	6	5
2 inv	1	7
0 inv	4	9
+V	12	1
0 V	10	2
+V sense	2	-
0V sense	11	-
Gnd	Chassis	Chassis

MATING CONNECTOR

12-pol M23 Female Connector, CW



ELECTRICAL SPECIFICATIONS

Switching speed (n)	800 ... 4000 rpm	(pre-defined value)
Overspeed principle	Mechanical centrifugal type	
Switching accuracy	$n \pm 75$ rpm	(standard)
Switching hysteresis	Approx. 40 - 65 % of switching speed	
Switching deviation	< 3 %	(cw - ccw rotation)
Mechanical lifetime	500.000 cycles	
Max. rpm	5000 rpm	
Contact type	Open / Close	
Output switching capacity	22 A / 230 Vac	(short time)
	3 A / 230 Vac	(continuous)

CONNECTION TYPE

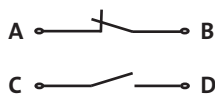
A	M23 Male, CW, 6 pin
C	Terminal box for $\phi 6\text{mm}-\phi 12\text{mm}$ cable

FUNCTION

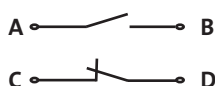
Signal	A (M23)	C (Terminal box)
A	1	1
B	2	2
C	3	3
D	4	4
Gnd	Chassis	Chassis

OVERSPEED OUTPUT DESCRIPTION

When $\text{rpm} < n_{\text{limit}}$



When $\text{rpm} > n_{\text{limit}}$



ORDERING KEY

Model - Material - Connection - Encoder - Overspeed

Model	MA450
Material	A Aluminium enclosure S Stainless steel enclosure
Connection	A M23 Connector C Terminal box ($\phi 6\text{mm}-\phi 12\text{mm}$ cable)
Encoder	xxxxx Type definition, as described below
Overspeed	nnnn Type definition, as described below

TYPE DEFINITION ENCODER

Electronics	T	TTL
	H	HTL

Resolution 1 .. 2500

TYPE DEFINITION OVERSPEED

Interface R Overspeed

Limit value nnnn rpm

Sample ordering key

MA450-SA- T1024-R1000 (1 x incremental, 1000 rpm)
MA450-SC- H2048-R2500 (1 x incremental, 2500 rpm)