

## MIR 3000F

Sensor head with magnetic tape for shaft  $\varnothing 300 \dots 3183$  mm  
 512...131072 pulses or 512...16384 sinewave cycles per turn

### Overview

- Encoder without bearings - incremental with magnetic sensing
- Flexible design for wide shaft diameter range
- Square-wave signals HTL/TTL or sine signals
- Max. 131072 pulses per revolution
- Status indication via system OK output and LED
- Robust and wearless
- Fully encapsulated electronics IP 67
- Large mounting tolerances



### Technical data

#### Technical data - electrical ratings

Voltage supply	4.75...30 VDC
Consumption w/o load	$\leq 300$ mA (24 VDC)
Initializing time	$\leq 1000$ ms after power on
Output signals	A+, B+, R+, A-, B-, R-
Sensing method	Magnetic
Status indicator	Color-LED, system OK output
Interference immunity	EN 61000-6-2
Emitted interference	EN 61000-6-3
Approval	CE UL approval / E217823

#### Technical data - electrical ratings (square-wave)

Pulses per revolution	512 ... 131072
Phase shift	$90^\circ \pm 2^\circ$
Duty cycle	45...55 %
Reference signal	Zero pulse, width $90^\circ$
Output frequency	$\leq 500$ kHz (HTL) $\leq 2$ MHz (TTL)
Output stages	HTL, TTL/RS422

#### Technical data - electrical ratings (SinCos)

Sinewave cycles per revolution	512 ... 16384
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#### Technical data - electrical ratings (SinCos)

Phase shift	$90^\circ \pm 2^\circ$
Reference signal	Zero pulse, width $360^\circ$
Output frequency	$\leq 500$ kHz
Output stages	SinCos 1 Vpp

#### Technical data - mechanical design

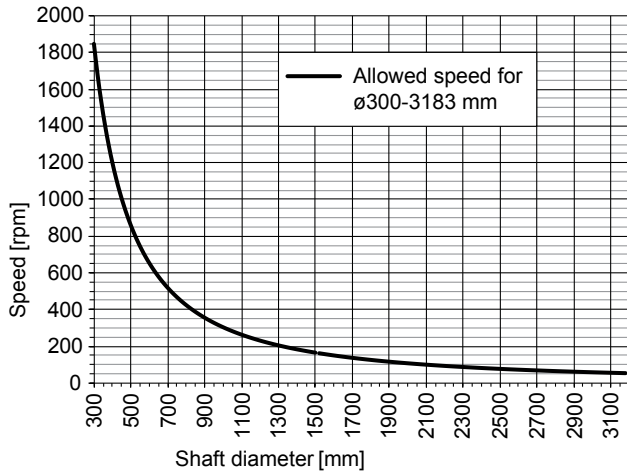
Dimensions (sensor head)	165 x 25 x 93 mm
Shaft type	$\varnothing 300 \dots 3183$ mm (through hollow shaft)
Axial tolerance	$\pm 5$ mm (belt to head)
Radial tolerance	1...3 mm (belt to head)
Protection EN 60529	IP 67
Operating speed	$\leq 1850$ rpm ( $\varnothing 300$ mm) $\leq 150$ rpm ( $\varnothing 1500$ mm)
Material	Housing sensing head: aluminium alloy Magnetic belt: stainless steel (1.4310)
Operating temperature	$-40 \dots +85$ °C
Resistance	IEC 60068-2-6 Vibration 30 g, 10-2000 Hz IEC 60068-2-27 Shock 300 g, 6 ms
Weight approx.	730 g (head) 120 g (belt/m), 17 g (lock)
Connection	Flange connector M23, 12-pin

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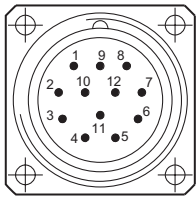
### Speed dependent on the shaft diameter



### Terminal assignment

**View A** (see dimension)

Assignment flange connector



Flange connector M23, male, 12-pin, counter-clockwise (CCW)

Pin	Assignment
1	B-
2	System OK-
3	R+
4	R-
5	A+
6	A-
7	dnu
8	B+
9	dnu
10	0V ( $\perp$ )
11	System OK+
12	+UB

No error if „System OK“ output = HIGH

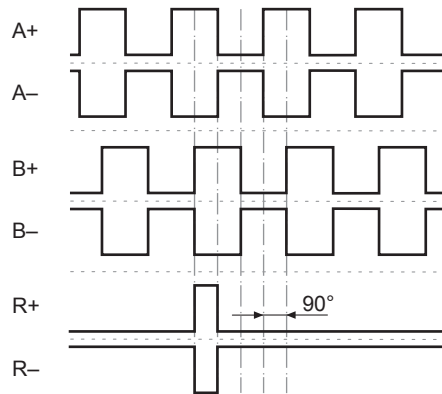
### Terminal significance

+UB	Voltage supply
0V ( $\perp$ )	Ground
A+	Output signal channel 1
A-	Output signal channel 1 inverted
B+	Output signal channel 2 (offset by 90° to channel 1)
B-	Output signal channel 2 inverted
R+	Zero pulse (reference signal)
R-	Zero pulse inverted
System OK+	Error output
System OK-	Error output inverted
dnu	Do not use

### Output signals

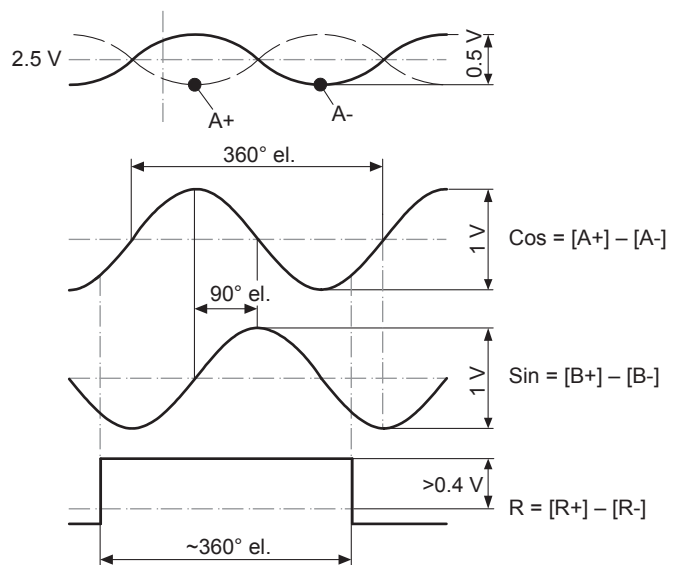
#### HTL/TTL

At positive rotating direction (see dimension)



#### SinCos

At positive rotating direction (see dimension)

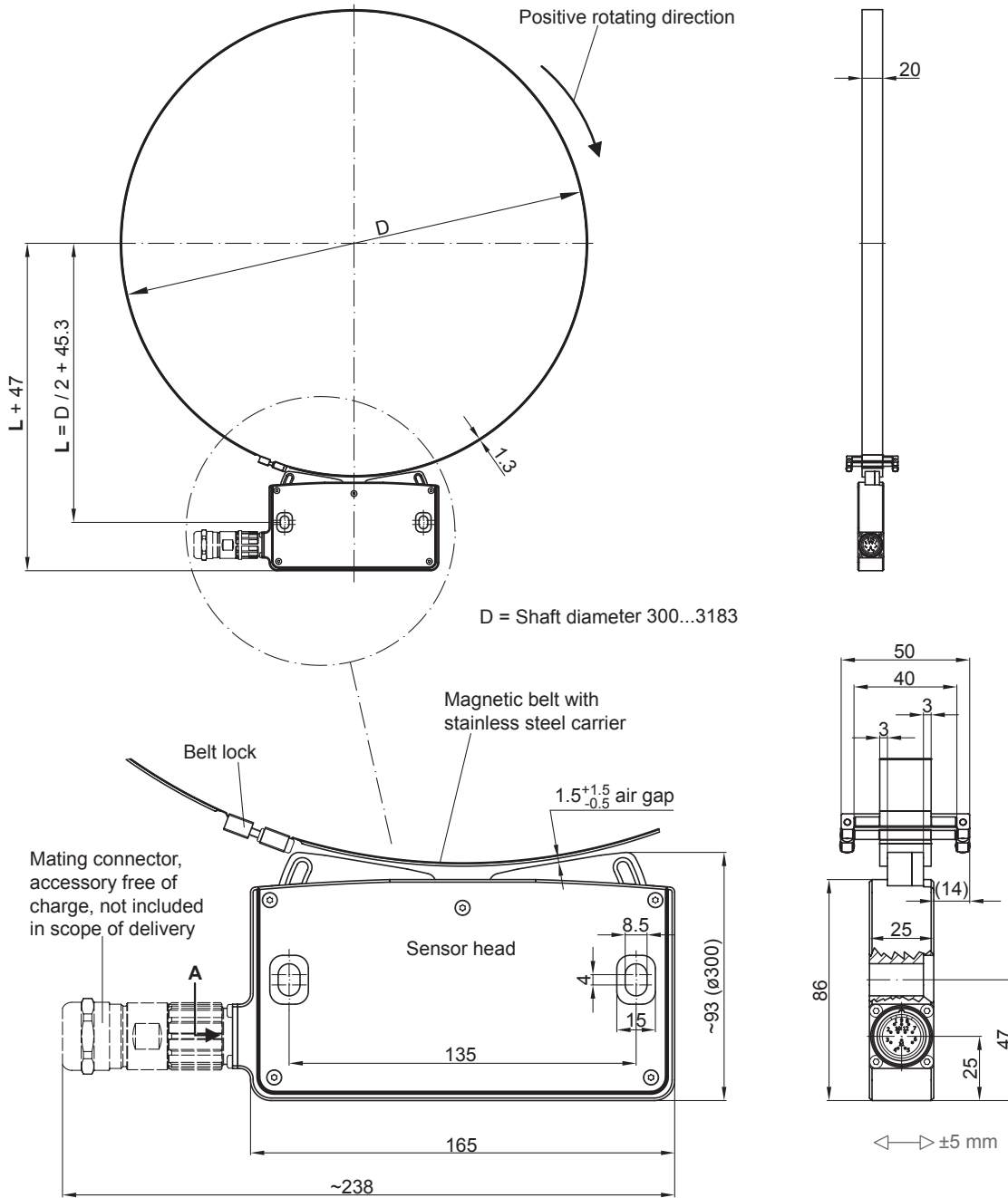


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## Dimensions



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## Ordering reference

**MIR3000F - #### . M ## . ##### . A**

### Product

Encoder without bearings - incremental

MIR3000F

### Through hollow shaft (Ø mm)

300 - 3185

 300 -  
3185

### Connection

Flange socket M23, 12-pin, pin contacts, CCW

M

### Supply voltage / output

4,75...30 VDC, TTL/HTL push-pull (Vin=Vout)

Q

4,75-30 VDC, TTL (RS422)

F

4,75-30 VDC, SinCos 1 Vpp

T

### Pulses per revolution<sup>(1)</sup>

512

512

720

720

1000

1000

1024

1024

2048

2048

4096

4096

5000

5000

8192

8192

10000

10000

16384

16384

 32768<sup>(2)</sup>

32768

 131072<sup>(2)</sup>

131072

### Operating temperature

-40...+85 °C

A

(1) Other pulse numbers/sinewave cycles on request.

(2) No SinCos output possible

## Accessories

### Connectors and cables

Sensor cable for encoders HEK 8

11068549

Mating connector M23, solder version, 12-pin, CW