

## PMG10P - SSI

Solid shaft  $\varnothing 11$  mm with EURO flange B10 or housing foot B3 / ST and MT 20 bit

Speed switch, SSI absolut value, number of pulses and switching speed freely programmable

### Overview

- Magnetic sensing method
- Singleturn/multiturn 20 bit programmable
- Function display via LEDs
- Multiturn sensing with Energy Harvesting technology "MicroGen", without gear or battery
- Two-sided bearing system with hybrid bearings
- Special protection against corrosion CX (C5-M)



Picture similar

**HUBNER**  
BERLIN  
A Baumer Brand

**microGen**  
Energy Harvesting

### Technical data

#### Technical data - electrical ratings

Voltage supply	4.75...30 VDC
Short-circuit proof	Yes
Consumption w/o load	$\leq 100$ mA (SSI)
Initializing time	$\leq 500$ ms after power on
Interface	SSI
Steps per revolution	1048576 / 20 bit
Number of revolutions	1048576 / 20 bit
Additional outputs	Square-wave TTL/HTL, TTL/RS422
Sensing method	Magnetic
Code	Gray (fact. setting) or binary
Code sequence	CW (fact. setting), programmable
Input signals	SSI clock, PRESET, rotating direction
Interference immunity	EN 61000-6-2
Emitted interference	EN 61000-6-3
Programming interface	RS485 ( $\leq 600$ m)
Programmable parameters	Resolution singleturn and multiturn (SSI), binary or gray code (SSI), additional output (no. of pulses), switch-off and switch-on speeds
Diagnostic function	Function control
Status indicator	4 LEDs in device back side
Approval	CE UL approval / E217823

#### Technical data - electrical ratings (speed switch)

Switching accuracy	$\pm 2$ % (or 1 Digit)
Switching outputs	1 output (Open collector, solid state relay on request)

#### Technical data - electrical ratings (speed switch)

Output switching capacity	30 VDC; $\leq 100$ mA
Switching delay time	$\leq 20$ ms

#### Technical data - mechanical design

Size (flange)	$\varnothing 115$ mm
Shaft type	$\varnothing 11$ mm solid shaft
Flange	EURO flange B10 Housing foot B3
Protection EN 60529	IP 66 / IP 67
Operating speed	$\leq 12000$ rpm
Range of switching speed	ns (off) = $\pm 2$ ...12000 rpm, factory setting 6000 rpm
Operating torque typ.	10 Ncm
Rotor moment of inertia	1 kgcm <sup>2</sup>
Admitted shaft load	$\leq 450$ N axial $\leq 650$ N radial
Material	Housing: aluminium alloy Shaft: stainless steel
Corrosion protection	IEC 60068-2-52 Salt mist for ambient conditions CX (C5-M) according to ISO 12944-2
Operating temperature	-40...+95 °C
Relative humidity	95 % non-condensing
Resistance	IEC 60068-2-6 Vibration 30 g, 10-2000 Hz IEC 60068-2-27 Shock 400 g, 1 ms
Weight approx.	1.9 kg (depending on version)
Connection	Terminal box Flange connector M23

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### Optional

- Integrated speed switch programmable
- Additional outputs incremental programmable

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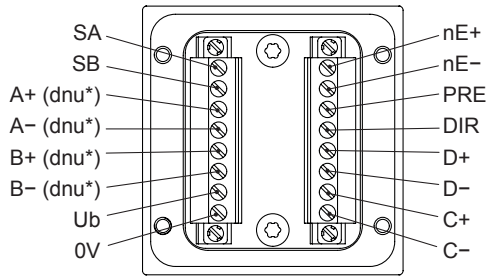
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## Terminal assignment

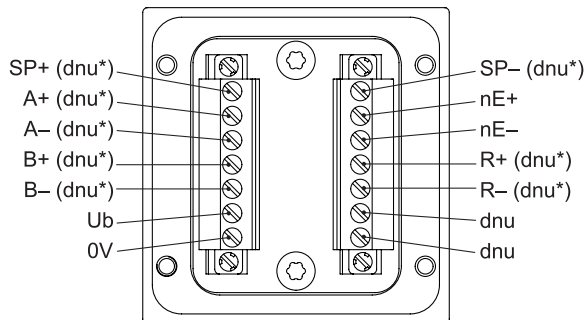
### View A (see dimension)

Connecting terminal terminal box  
SSI / programming interface / additional output I (HTL, TTL)  
\* Assignment depends on encoder version



### View B (see dimension)

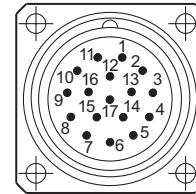
Connecting terminal terminal box  
Speed switch / additional output II (HTL, TTL)  
\* Assignment depends on encoder version



## Terminal assignment

### View C (see dimension)

Assignment flange connector  
SSI / programming interface / additional output I (HTL, TTL)  
\* Assignment depends on encoder version



Flange socket M23  
(male, 17-pin),  
CW

Pin	Assignment
1	nE-
2	DIR
3	SB
4	nE+
5	PRE
6	SA
7	Ub
8	C+
9	C-
10	0V
11	Internal shield
12	B+ (dnu*)
13	B- (dnu*)
14	D+
15	A+ (dnu*)
16	A- (dnu*)
17	D-

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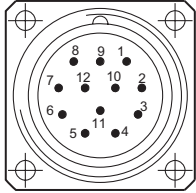
## Terminal assignment

**View D** (see dimension)

Assignment flange connector

Speed switch / additional output II (HTL, TTL)

\* Assignment depends on encoder version



Flange socket M23  
(male, 12-pin),  
CW

Pin	Assignment
1	B- (dnu*)
2	nE-
3	R+ (dnu*)
4	R- (dnu*)
5	A+ (dnu*)
6	A- (dnu*)
7	SP+ (dnu*)
8	B+ (dnu*)
9	SP- (dnu*)
10	0V
11	nE+
12	Ub

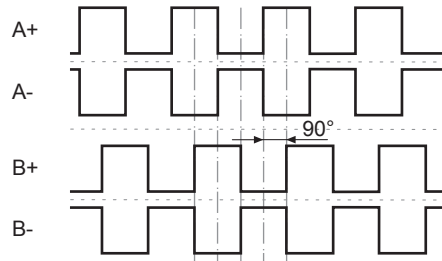
## Terminal significance

Ub	Voltage supply
0V	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
nE+	System OK+ / error output
nE-	System OK_ / error output inverted
PRE	PRESET/RESET
DIR	Rotating direction
SP+	DSL_OUT1 / speed switch (Open collector, solid state relay on request)
SP-	DSL_OUT2 / speed switch (0V, solid state relay on request)
SA	RS485+ / programming interface
SB	RS485- / programming interface
D+	SSI data+
D-	SSI data-
C+	SSI clock+
C-	SSI clock-
dnu	Do not use

## Output signals

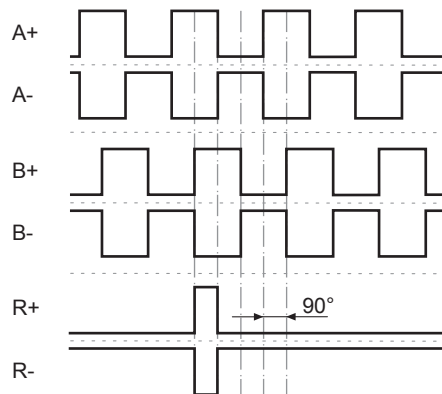
### Additional output I (HTL/TTL)

At positive rotating direction (see dimension)

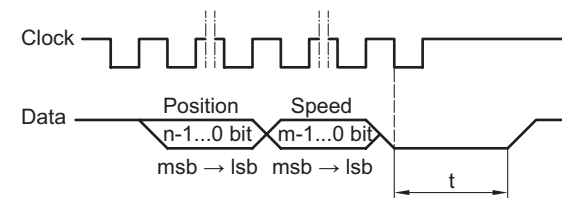


### Additional output II (HTL/TTL)

At positive rotating direction (see dimension)



## Data transfer



Clock frequency 100 kHz...2 MHz

Monoflop time (t) 20  $\mu$ s (internal)

n, m Number of bits

For continuous clocking, the SSI word is transmitted only once followed by zero values (no ring register operation).

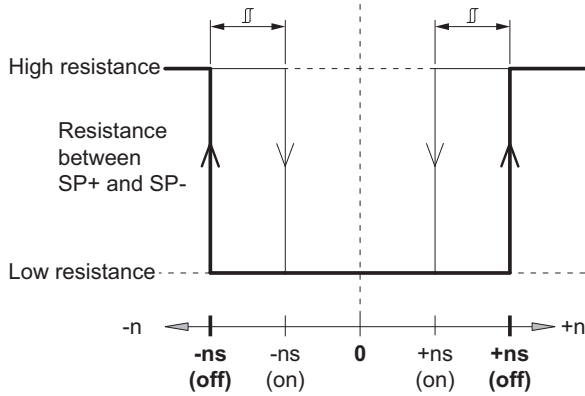
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## Switching characteristics

### Speed switch



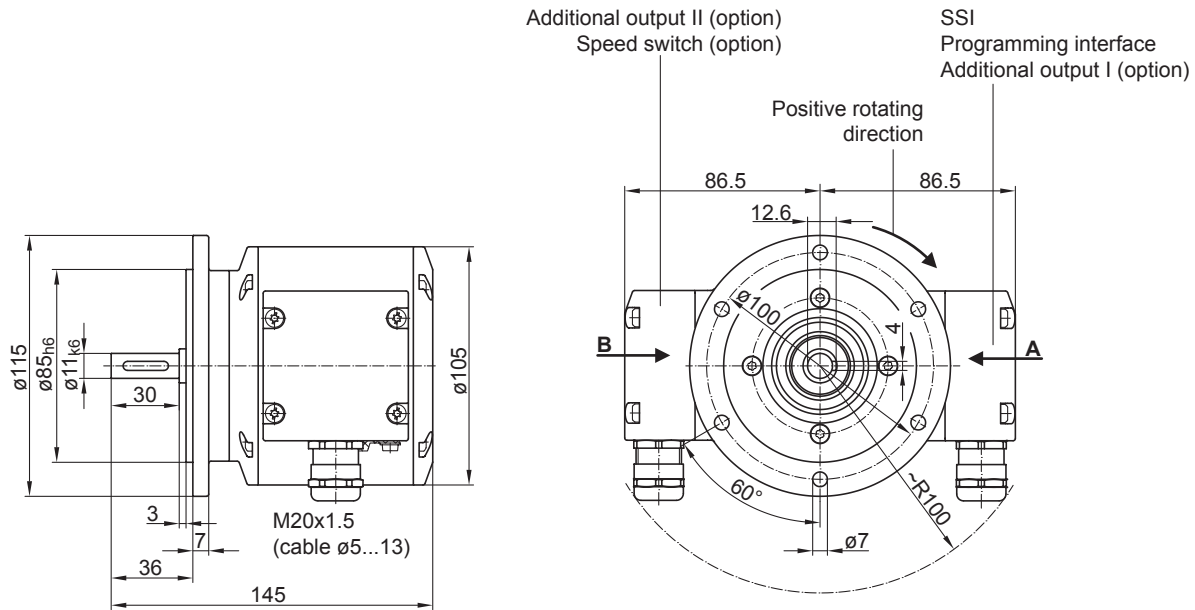
n	Speed
<b>+ns (off)</b>	Switch-off speed at shaft rotation in positive rotating direction ( <i>see dimension</i> ).
<b>-ns (off)</b>	Switch-off speed at shaft rotation in negative rotating direction ( <i>see dimension</i> ).
	Switching hysteresis $\Delta$ : 10...100 % (factory setting = 10 % min. 1 Digit)
<b>+ns (on)</b>	Switch-on speed at shaft rotation in positive rotating direction ( <i>see dimension</i> ).
<b>-ns (on)</b>	Switch-on speed at shaft rotation in negative rotating direction ( <i>see dimension</i> ).

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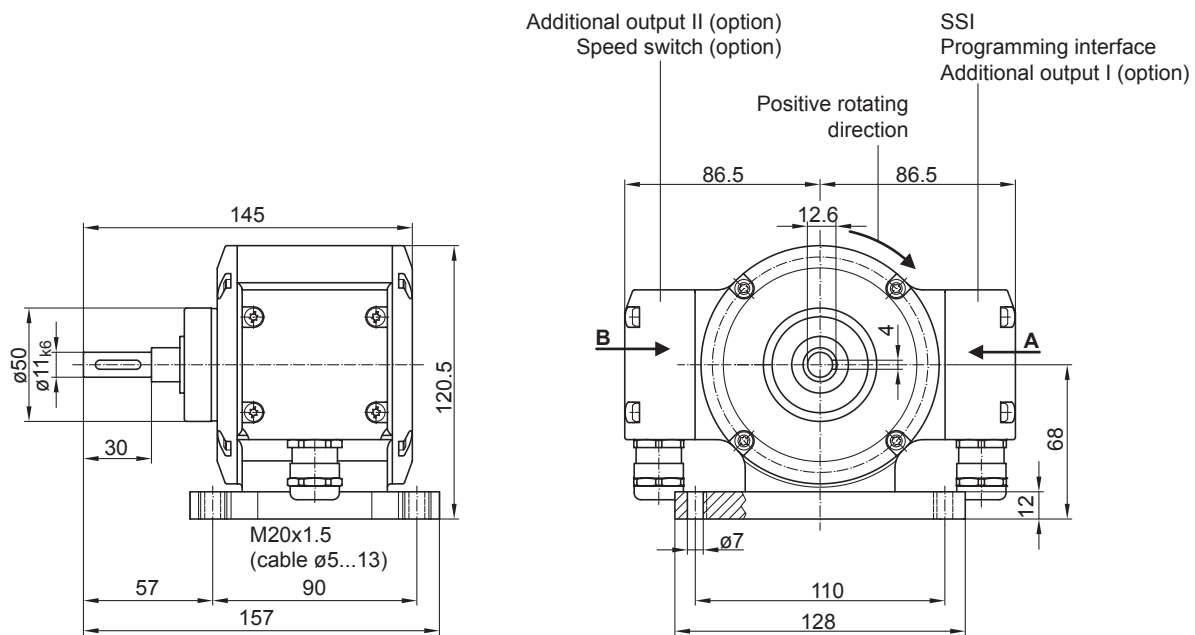
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## Dimensions



Version with radial terminal boxes with EURO flange (B10)



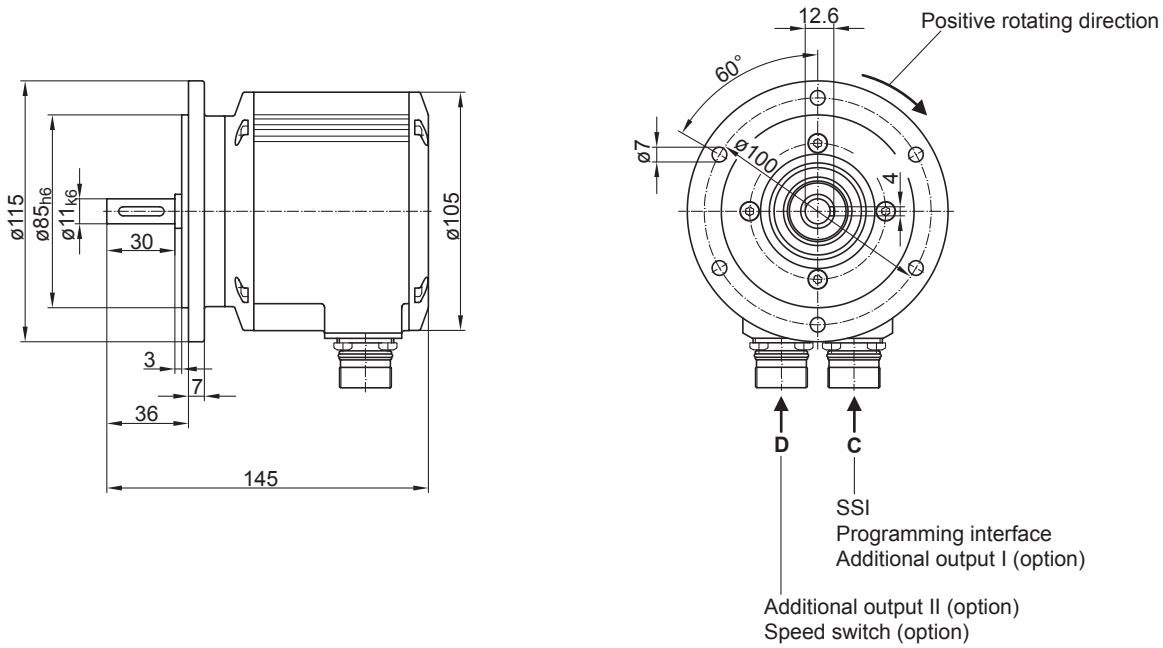
Version with radial terminal boxes with housing foot (B3)

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## Dimensions



Version with radial flange connectors M23 with EURO flange (B10)

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**Ordering reference**

	PMG10P	#	-	S	H	#	.	1	#	UG	#	.	#	0	#	#	#	
<b>Product</b>	Absolute encoder	PMG10P																
<b>Digital speed switch</b>	With <sup>(1)</sup>			D														
	Without			-														
<b>Shaft type</b>	Solid shaft				S													
<b>Flange (Solid shaft)</b>	EURO flange B10, hybrid bearings					H												
<b>Protection class</b>	IP 66 and IP 67, optimized for dusty, abrasive environment																	D
	IP 66 and IP 67, optimized for oily, wet environment																	L
<b>Solid shaft</b>	ø11 mm, featherkey 4 mm																	1
<b>Connection</b>	Terminal box radial, cable gland M20																	2
	Terminal box 2x radial, cable gland M20																	M
	Flange socket radial, M23, 17 pin, male, CW																	G
	Flange socket radial, 1x M23, 17 pin, male, CW + 1x M23, 12 pin, male, CW																	S
	Flange socket radial, 1x M23, 17 pin, male, CW + 1x M23, 12 pin, male, CCW																	V
<b>Supply voltage</b>	4,75...30 VDC, SSI Gray <sup>(2)</sup>																	UG
<b>Resolution singleturn position</b>	No position signal																	0
	13 Bit <sup>(2)</sup>																	3
<b>Resolution multiturn position</b>	No multiturn signal																	0
	16 Bit <sup>(2)</sup>																	6
<b>Resolution speed</b>	No speed signal <sup>(2)</sup>																	0
<b>Resolution supplement I</b>	No additional output I																	0
	1024 ppr TTL/HTL push-pull (Vin=Vout), 4 channels <sup>(2)</sup>																	5
	1024 ppr TTL (RS422), 4 channels <sup>(2)</sup>																	6
<b>Resolution supplement II</b>	No additional output II																	0
	1024 ppr TTL/HTL push-pull (Vin=Vout), 6 channels, electrically isolated <sup>(2)</sup>																	5
	1024 ppr TTL (RS422), 6 channels <sup>(2)</sup>																	6
<b>Operating temperature</b>	-40...+85 °C																	A
	-40...+95 °C																	G

(1) Switching speed 6000 rpm / factory setting, programmable

(2) Factory setting, programmable

 It may happen that not all variants of the type code can be combined. Any restrictions can be found in the web configurator at [www.baumer.com](http://www.baumer.com) or on request.



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### Accessories

#### Mounting accessories

	Spring disk coupling K35 (shaft $\varnothing$ 6...12 mm)
	Spring disk coupling K 50 (shaft $\varnothing$ 11...16 mm)
11064874	Spring disk coupling K60 WD 11PF4 + 12PF4

#### Programming accessories

11190106	Z-PA.SDL.1 - WLAN-Adapter
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