PMG10 - SSI

Solid shaft ø11 mm with EURO flange B10 or housing foot B3
ST and MT 20 bit each / Speed switch

Overview

- Magnetic sensing method
- 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

HÜBNER 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	≤100 mA (SSI)
Initializing time	≤ 500 ms after power on
Interface	SSI
Function	Multiturn
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 or binary
Code sequence	CW (factory setting)
Input signals	SSI clock, PRESET, rotating direction
Interference immunity	EN 61000-6-2
Emitted interference	EN 61000-6-3
Diagnostic function	Function control
Status indicator	4 LEDs in device back side
Approval	CE UL approval / E217823 EAC
Technical data - electrical ratings (speed switch)	
Switching accuracy	± 2 % (or 1 Digit)
Switching outputs	1 output (Open collector, solid state relay on request)
Output switching capacity	30 VDC; ≤100 mA

Technical data - electrical ratings (speed switch)	
Switching delay time	≤20 ms
Technical data - mechanical design	
Size (flange)	ø115 mm
Shaft type	ø11 mm solid shaft
Flange	EURO flange B10 Housing foot B3
Protection EN 60529	IP 66/IP 67
Operating speed	≤12000 rpm
Range of switching speed	ns (off) = ±2...12000 rpm
Operating torque typ.	10 Ncm
Rotor moment of inertia	1 kgcm²
Admitted shaft load	≤450 N axial ≤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

Optional

- Integrated speed switch
- Additional outputs incremental with zero pulse

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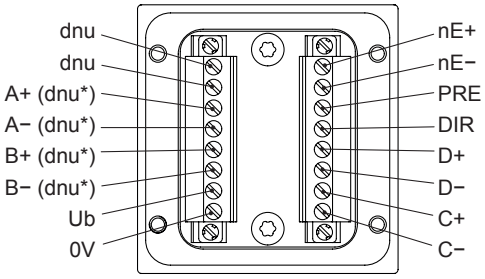
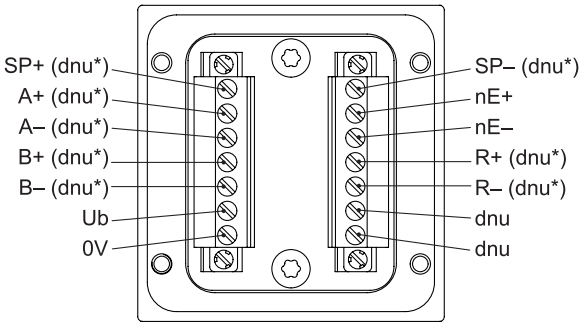
Terminal assignment

View A *(see dimension)*
Connecting terminal terminal box
SSI /
additional output I (HTL, TTL)
* Assignment depends on encoder version

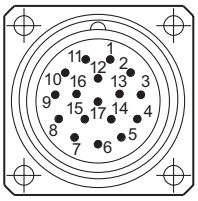


View B *(see dimension)*
Connecting terminal terminal box
Speed switch /
additional output II (HTL, TTL)
* Assignment depends on encoder version



Terminal assignment

View C *(see dimension)*
Assignment flange connector
SSI / additional output I (HTL, TTL)
* Assignment depends on encoder version



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

Pin	Assignment
1	nE–
2	DIR
3	dnu
4	nE+
5	PRE
6	dnu
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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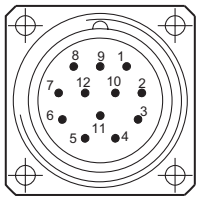
Terminal assignment

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

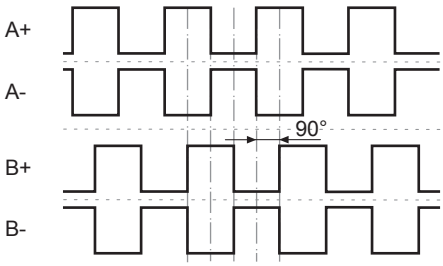
Pin	Assignment
1	B– (dnu*)
2	nE–
3	R+ (dnu*)
4	R– (dnu*)
5	A+ (dnu*)
6	A– (dnu*)
7	SP+ (dnu*)
8	B+ (dnu*)
9	SP– (dnu*)
10	0V
11	nE+
12	Ub

Terminal significance

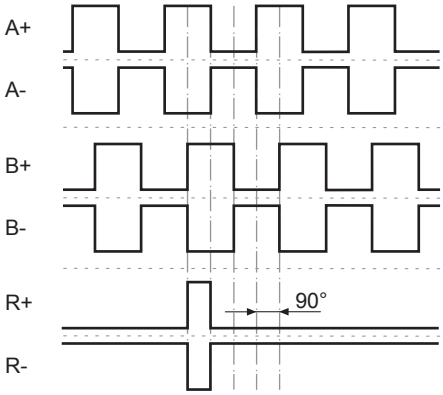
Ub	Voltage supply
0V	Ground
A+	Output signal channel 1
A–	Output signal channel 1 inverted
B+	Output signal channel 2 (offset by 90° to channel 1)
B–	Output signal channel 2 inverted
R+	Zero pulse (reference signal)
R–	Zero pulse inverted
nE+	System OK+ / error output
nE–	System OK _ / error output inverted
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)
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)*



Trigger level

Incremental HTL/TTL
Electrically isolated:
The output TTL/HTL (Vin = Vout) at the additional output II is electrically isolated and requires a separate power supply.

Trigger level	**TTL/RS422**
High / Low	≥2.5 V / ≤0.5 V
Transmission length	≤550 m @ 100 kHz
Output frequency	≤600 kHz
Trigger level	**TTL/HTL (Vin = Vout)**
High / Low	≥2.5 V / ≤0.5 V (TTL) ≥Ub -3 V / ≤1.5 V (HTL)
Transmission length	≤550 m @ 100 kHz (TTL) ≤350 m @ 100 kHz (HTL)
Output frequency	≤600 kHz (TTL); ≤350 kHz (HTL)

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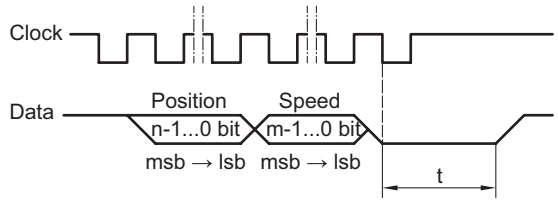
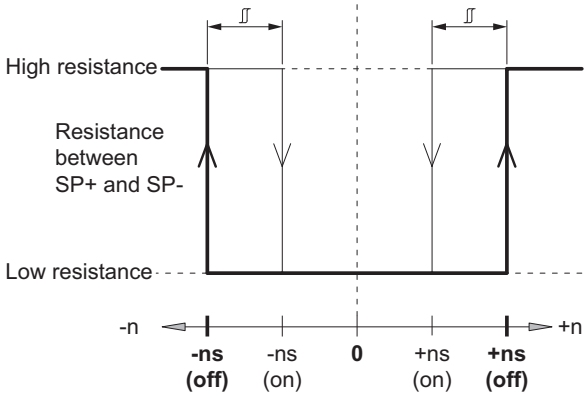
Data transfer



Clock frequency	100 kHz...2 MHz
Monoflop time (t)	20 µs (internal)
n, m	Number of bits

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

Switching characteristics speed switch



n	Speed
+ns (off)	Switch-off speed at shaft rotation in positive rotating direction *(see dimension)*.
-ns (off)	Switch-off speed at shaft rotation in negative rotating direction *(see dimension)*.
	Switching hysteresis ⎍: 10...100 % (factory setting = 10 % min. 1 Digit)
+ns (on)	Switch-on speed at shaft rotation in positive rotating direction *(see dimension)*.
-ns (on)	Switch-on speed at shaft rotation in negative rotating direction *(see dimension)*.

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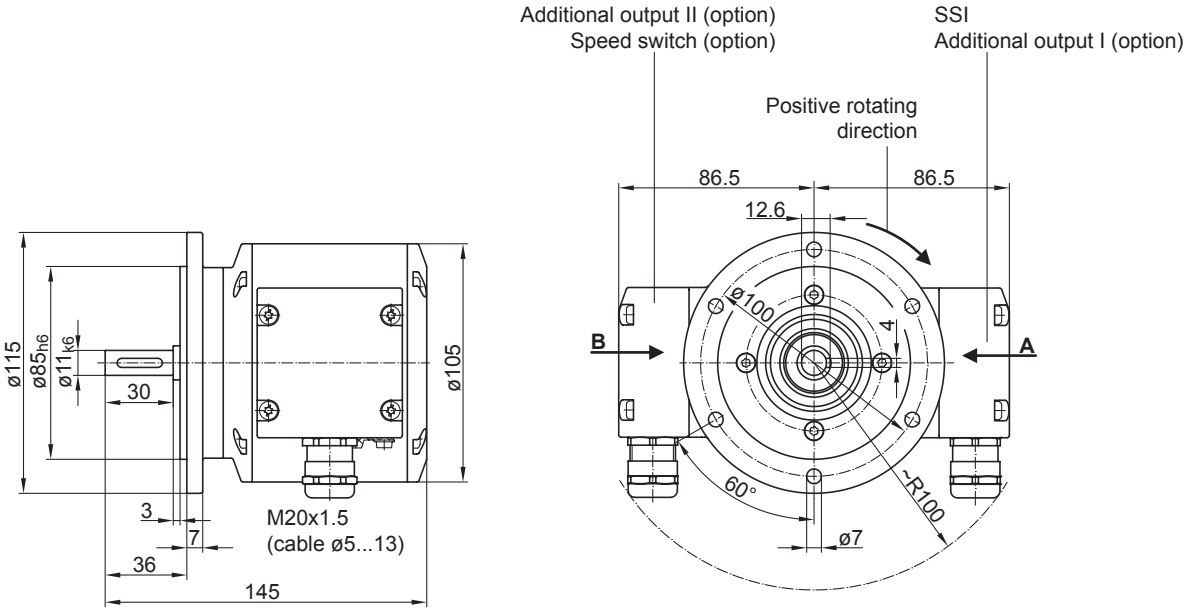
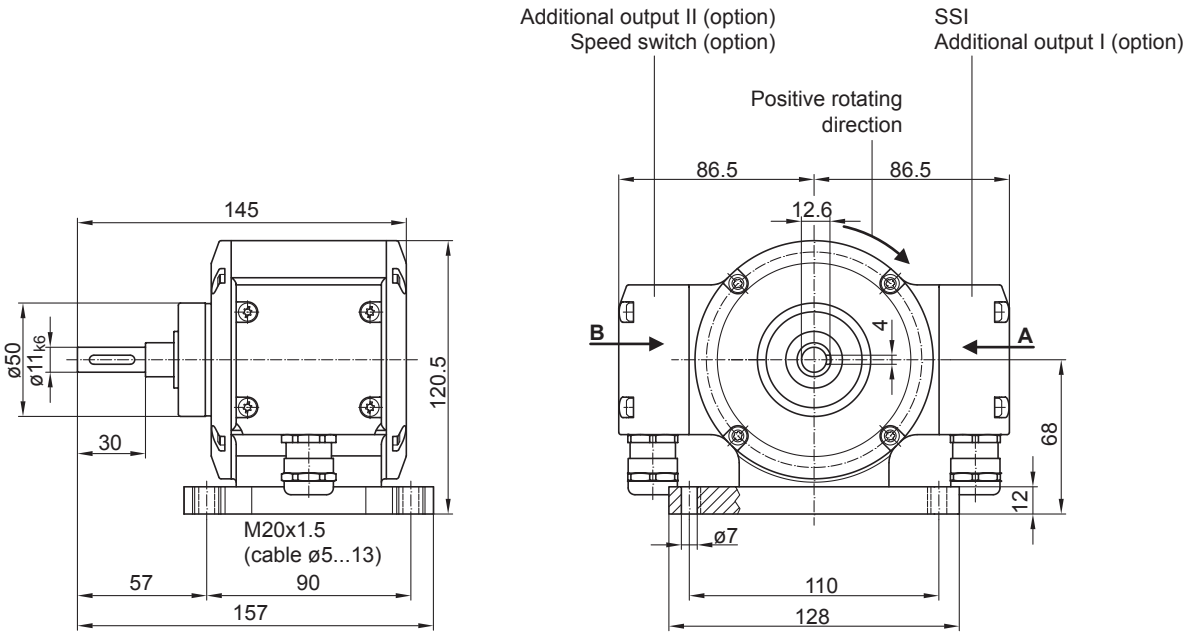
Dimensions



Version with radial terminal boxes with EURO flange (B10)

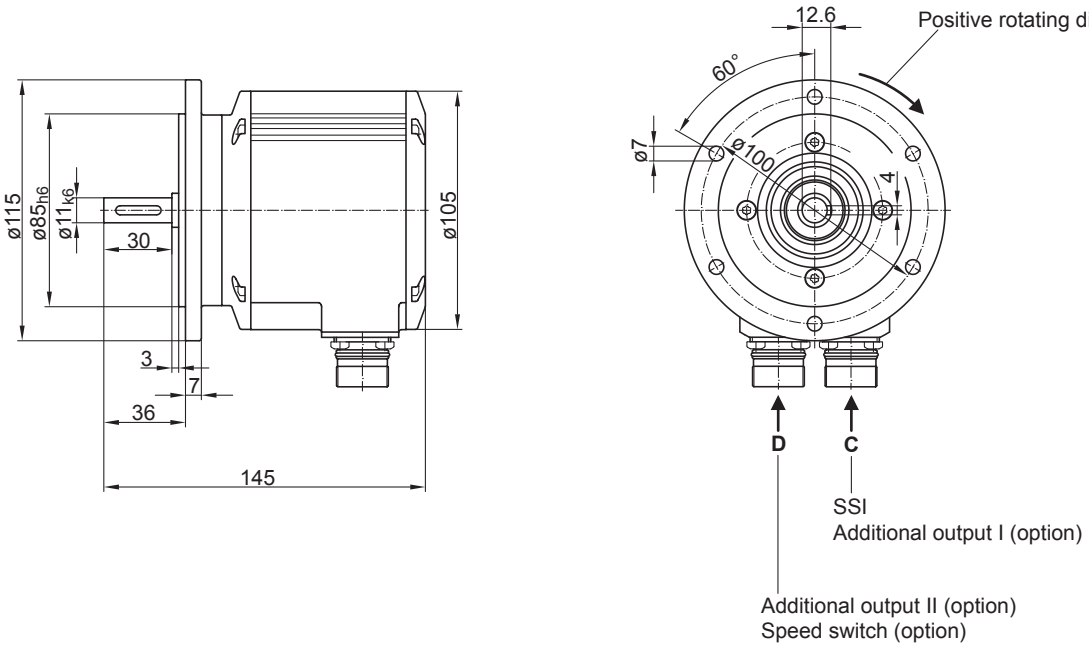


Version with radial terminal boxes with housing foot (B3)

PMG10 - SSI

Solid shaft ø11 mm with EURO flange B10 or housing foot B3
ST and MT 20 bit each / Speed switch

Dimensions



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

PMG10 - SSI

Solid shaft ø11 mm with EURO flange B10 or housing foot B3
ST and MT 20 bit each / Speed switch

Ordering reference

	PMG10	#	-	S	H	#	.	1	#	##	.	#	#	#	#	#	.	#
Product																		
Absolute encoder	PMG10																	
Digital speed switch																		
With(1)		D																
Without		-																
Shaft type																		
Solid shaft				S														
Flange (Solid shaft)																		
EURO flange B10, hybrid bearings					H													
Protection class																		
IP 66 and IP 67, optimized for dusty, abrassive environment						D												
IP 66 and IP 67, optimized for oily, wet environment						L												
Solid shaft																		
Ø11 mm, featherkey 4 mm								1										
Connection																		
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									
Supply voltage																		
4,75...30 VDC, SSI binary										UB								
4,75...30 VDC, SSI Gray										UG								
Resolution singleturn position																		
No position signal												0						
10 Bit												A						
11 Bit												1						
12 Bit												2						
13 Bit												3						
14 Bit												4						
15 Bit												5						
16 Bit												6						
17 Bit												7						
18 Bit												8						
19 Bit												9						
20 Bit												B						
Resolution multiturn position																		
No multiturn signal													0					
10 Bit													A					
11 Bit													1					
12 Bit													2					
13 Bit													3					
14 Bit													4					
15 Bit													5					
16 Bit													6					
17 Bit													7					
18 Bit													8					
19 Bit													9					
20 Bit													B					

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Ordering reference

	PMG10	#	-	S	H	#	.	1	#	##	.	#	#	#	#	#	.	#
Resolution speed																		
No speed signal														0				
10 Bit, ±6000 rpm														A				
11 Bit, ±6000 rpm														1				
12 Bit, ±6000 rpm														2				
13 Bit, ±6000 rpm														3				
14 Bit, ±6000 rpm														4				
15 Bit, ±6000 rpm														5				
16 Bit, ±6000 rpm														6				
17 Bit, ±6000 rpm														7				
18 Bit, ±6000 rpm														8				
19 Bit, ±6000 rpm														9				
20 Bit, ±6000 rpm														B				
Resolution supplement I																		
No additional output I															0			
8192 ppr TTL/HTL push-pull (Vin=Vout), 4 channels															Q			
8192 ppr TTL (RS422), 4 channels															P			
5000 ppr TTL/HTL push-pull (Vin=Vout), 4 channels															G			
5000 ppr TTL (RS422), 4 channels															H			
4096 ppr TTL/HTL push-pull (Vin=Vout), 4 channels															K			
4096 ppr TTL (RS422), 4 channels															J			
3072 ppr TTL/HTL push-pull (Vin=Vout), 4 channels															7			
3072 ppr TTL (RS422), 4 channels															8			
2048 ppr TTL/HTL push-pull (Vin=Vout), 4 channels															9			
2048 ppr TTL (RS422), 4 channels															4			
1024 ppr TTL/HTL push-pull (Vin=Vout), 4 channels															5			
1024 ppr TTL (RS422), 4 channels															6			
512 ppr TTL/HTL push-pull (Vin=Vout), 4 channels															1			
512 ppr TTL (RS422), 4 channels															2			
Resolution supplement II																		
No additional output II																0		
8192 ppr TTL/HTL push-pull (Vin=Vout), 6 channels, electrically isolated																Q		
8192 ppr TTL (RS422), 6 channels																P		
5000 ppr TTL/HTL push-pull (Vin=Vout), 6 channels, electrically isolated																G		
5000 ppr TTL (RS422), 6 channels																H		
4096 ppr TTL/HTL push-pull (Vin=Vout), 6 channels, electrically isolated																K		
4096 ppr TTL (RS422), 6 channels																J		
3072 ppr TTL/HTL push-pull (Vin=Vout), 6 channels, electrically isolated																7		
3072 ppr TTL (RS422), 6 channels																8		
2048 ppr TTL/HTL push-pull (Vin=Vout), 6 channels, electrically isolated																9		
2048 ppr TTL (RS422), 6 channels																4		
1024 ppr TTL/HTL push-pull (Vin=Vout), 6 channels, electrically isolated																5		
1024 ppr TTL (RS422), 6 channels																6		
512 ppr TTL/HTL push-pull (Vin=Vout), 6 channels, electrically isolated																1		
512 ppr TTL (RS422), 6 channels																2		
Operating temperature																		
-40...+85 °C																	A	
-40...+95 °C																	G	

(1) Please specify the exact switching speed in addition to the part number (factory setting).

Ordering reference

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 or on request.

Accessories

Mounting accessories

	Spring disk coupling K 35 (shaft ø6...12 mm)
	Spring disk coupling K 50 (shaft ø11...16 mm)
	Spring disk coupling K 60 (shaft ø11...22 mm)

Connectors and cables

	Sensor cable for encoders HEK 8
	Sensor cable for encoders HEK 17
11068577	Mating connector M23, solder version, 12-pin, CCW
11068551	Mating connector M23, solder version, 17-pin, CCW
11172481	Mating connector M23 (11 pins assigned) 17-pin, CCW with sensor cable HEK 17, length 3 m
11172499	Mating connector M23 (11 pins assigned) 17-pin, CCW with sensor cable HEK 17, length 5 m
11172580	Mating connector M23 (11 pins assigned) 17-pin, CCW with sensor cable HEK 17, length 10 m
11172463	Mating connector M23 (17 pins assigned) 17-pin, CCW with sensor cable HEK 17, length 3 m