

## PMG10P - EtherNet/IP

Solid shaft  $\varnothing 11$  mm with EURO flange B10 or housing foot B3 / EtherNet/IP / 13 bit ST / 16 bit MT  
Speed switch, number of pulses and switching speed freely programmable

### Overview

- Interface EtherNet/IP
- Magnetic sensing method
- Resolution: singleturn 13 bit, multiturn 16 bit
- 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	10...30 VDC
Short-circuit proof	Yes
Consumption w/o load	$\leq 200$ mA
Initializing time	$\leq 500$ ms after power on
Interface	EtherNet/IP
Function	Multiturn
Transmission rate	100 MBaud
Device address	HEX rotary switches in box or with "BOOTP/DHCP tool"
Steps per revolution	8192 / 13 bit
Number of revolutions	65536 / 16 bit
Additional outputs	Square-wave TTL/HTL, TTL/RS422
Sensing method	Magnetic
Interference immunity	EN 61000-6-2
Emitted interference	EN 61000-6-3
Programming interface	RS485 ( $\leq 600$ m)
Programmable parameters	Bus system: see bus features Additional output (number of pulses), switch-off and switch-on speeds
Diagnostic function	Position or parameter error
Status indicator	DUO-LED and LEDs link/activity in bus connecting box 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
<b>Technical data - mechanical design</b>	
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	$\leq 6000$ rpm
Range of switching speed	ns (off) = $\pm 2 \dots 6000$ 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) accord- ing to ISO 12944-2
Operating temperature	-40...+85 °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.	2.7 kg (depending on version)
Connection	Bus connecting box Terminal box incremental

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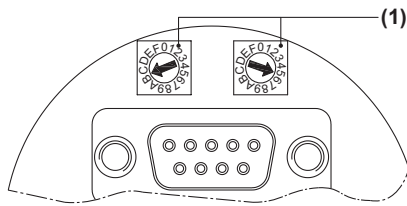
### Optional

- Integrated speed switch programmable
- Additional output incremental programmable

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## Terminal assignment



### (1) IP address

Defined by HEX rotary switch.

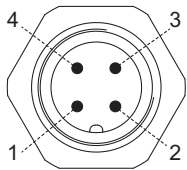
Example: IP address B5<sub>hex</sub>

Configuration via DHCP: 00<sub>hex</sub>



### View A1 (see dimension)

View into connector bus "voltage supply"

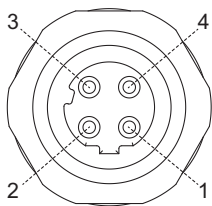


Connector M12 (male)  
4-pin, A-coded

Pin	Connection
1	UB
2	dnu
3	GND
4	dnu

### View A2 and A3 (see dimension)

View into connector bus „data transmission“



Connector M12 (female)  
4-pin, D-coded

Pin	Connection
1	TxD+
2	RxD+
3	TxD-
4	RxD-

## Terminal assignment

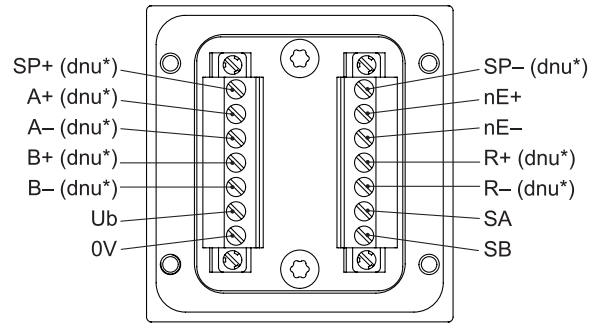
### View B (see dimension)

Connecting terminal box

Programming interface / speed switch /

additional output II (HTL, TTL)

\* Assignment depends on encoder version



## Terminal significance

### Bus interface

Connection	Description
GND	Ground for UB
UB	Voltage supply 10...30 VDC
TxD+	Transmission data+
TxD-	Transmission data-
RxD+	Receiving data+
RxD-	Receiving data-
dnu	Do not use
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
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
dnu	Do not use

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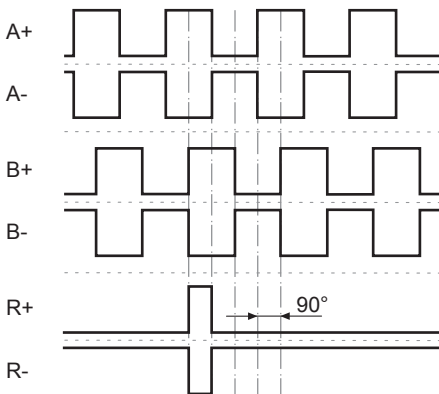
## EtherNet/IP features

Bus protocol	EtherNet/IP
Device profile	Encoder Device, type 22hex, according to CIP specification
Features	<ul style="list-style-type: none"> <li>100 MBaud Fast Ethernet</li> <li>IP address programmable</li> <li>Automatic IP address designation (DHCP)</li> <li>Rotating direction, resolution, total resolution and preset are programmable according to CIP specification</li> </ul>
Process data	Position value, warning flag, error flag, Assembly Instances 1 and 2 according to CIP specification

## Output signals

### Additional output II (HTL/TTL)

At positive rotating direction (see dimension)



## Trigger level

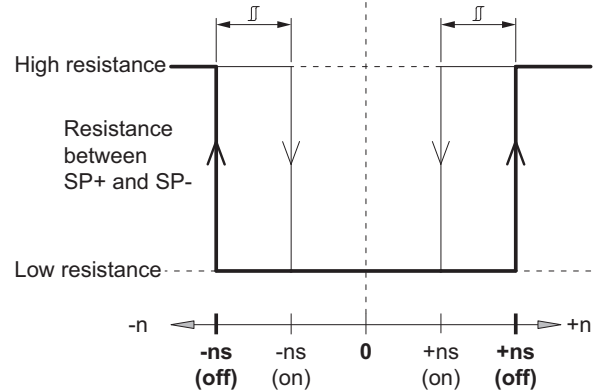
### Incremental HTL/TTL

Electrically isolated:  
The output TTL/HTL ( $V_{in} = V_{out}$ ) at the additional output II is electrically isolated and requires a separate power supply.

Trigger level	TTL/RS422
High / Low	$\geq 2.5$ V / $\leq 0.5$ V
Transmission length	$\leq 550$ m @ 100 kHz
Output frequency	$\leq 600$ kHz
Trigger level	TTL/HTL ( $V_{in} = V_{out}$ )
High / Low	$\geq 2.5$ V / $\leq 0.5$ V (TTL) $\geq U_b - 3$ V / $\leq 1.5$ V (HTL)
Transmission length	$\leq 550$ m @ 100 kHz (TTL) $\leq 350$ m @ 100 kHz (HTL)
Output frequency	$\leq 600$ kHz (TTL); $\leq 350$ kHz (HTL)

## Switching characteristics

### Speed switch

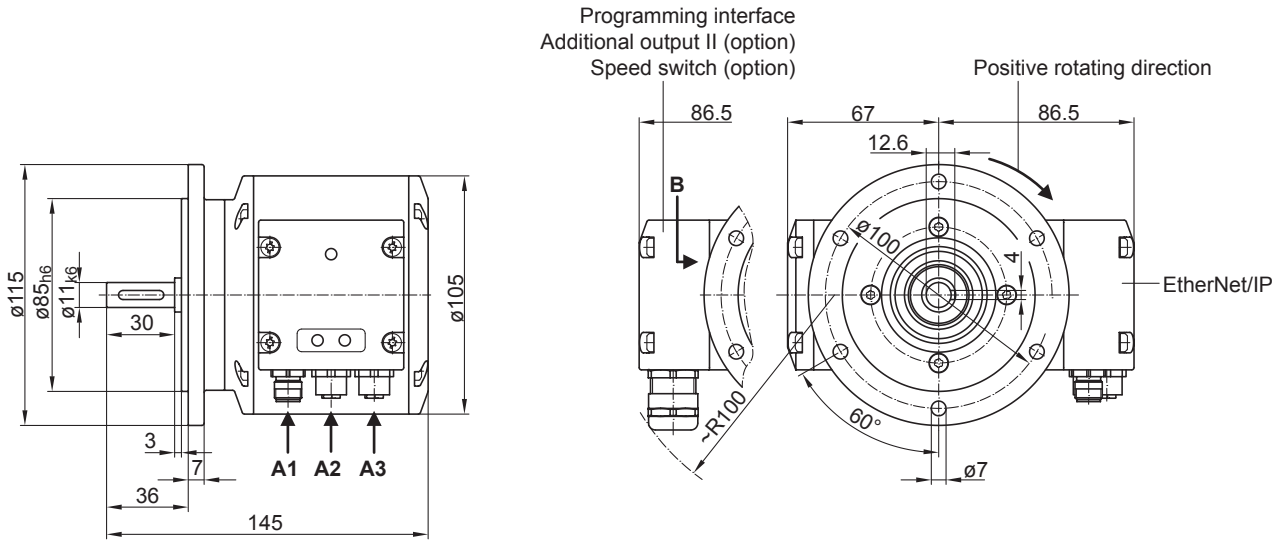


n	Speed
<b>+ns (off)</b>	Switch-off speed at shaft rotation in positive rotating direction (see dimension).
<b>-ns (off)</b>	Switch-off speed at shaft rotation in negative rotating direction (see dimension).
	Switching hysteresis $\Delta$ : 10...100 % (factory setting = 10 % min. 1 Digit)
<b>+ns (on)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

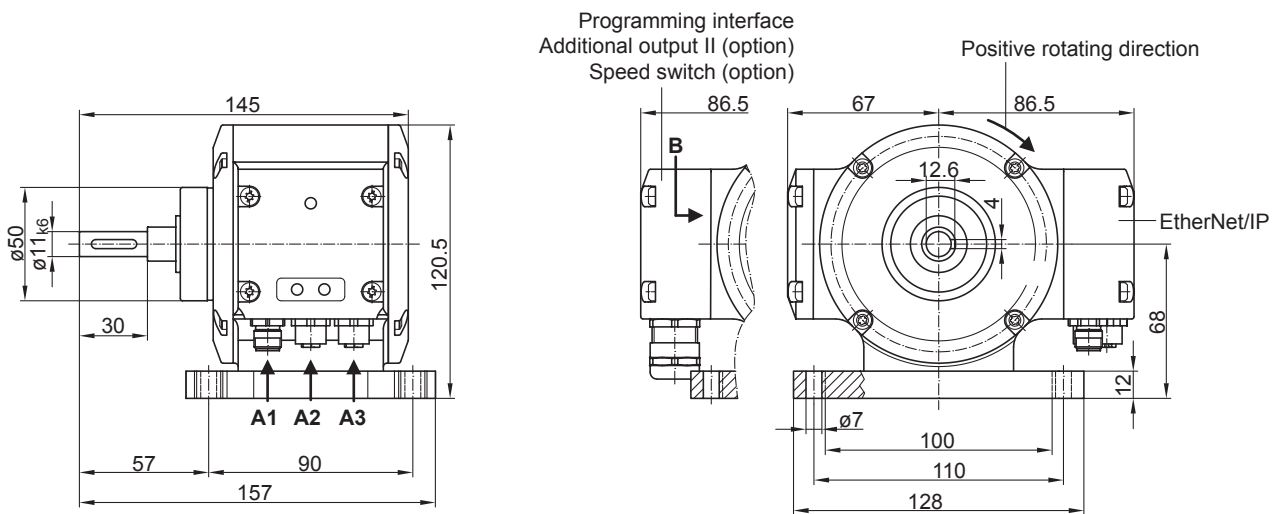
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## Dimensions



Version with Euro flange (B10)



Version with housing foot (B3)

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## Ordering reference

	PMG10P	#	-	S	H	#	.	1	G	EN	.	3	#	0	0	#	.	A
<b>Product</b>	PMG10P																	
Absolute encoder																		
<b>Digital speed switch</b>																		
With <sup>(1)</sup>				D														
Without				-														
<b>Shaft type</b>					S													
Solid shaft																		
<b>Flange (Solid shaft)</b>						H												
EURO flange B10, hybrid bearings																		
<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>																		
Bus connecting box with 3 connectors M12, radial + terminal box with 1 cable gland M20, radial																		G
<b>Supply voltage (field bus)</b>																		
10...30 VDC, EtherNet/IP																		EN
<b>Resolution singleturn position</b>																		
13 Bit																		3
<b>Resolution multiturn position</b>																		
No multiturn signal																		0
16 Bit																		6
<b>Resolution speed</b>																		
No speed signal																		0
<b>Resolution supplement I</b>																		
No additional output I																		0
<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																		

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

(2) Factory setting, programmable

## Accessories

### Mounting accessories

	Spring disk coupling K35 (shaft ø6...12 mm)
	Spring disk coupling K 50 (shaft ø11...16 mm)
11064874	Spring disk coupling K60 WD 11PF4 + 12PF4
11238694	CAM12.WS13-11238694

### Programming accessories

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