

# PMG10 - CANopen®

Solid shaft  $\varnothing 11$  mm with EURO flange B10 or housing foot B3  
 CANopen® / 13 bit ST / 16 bit MT / Speed switch

## Overview

- Interface CANopen®
- 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	CANopen®
Function	Multiturn
Transmission rate	10 ... 1000 kBaud
Device address	Rotary switches in bus connecting box
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
Programmable parameters	Steps per revolution Number of revolutions Preset, scaling, rotating direction
Diagnostic function	Position or parameter error
Status indicator	DUO-LED (bus connecting box) 4 LEDs in device back side
Approval	CE UL approval / E217823 EAC

### 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) = $\pm 2$ ...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...+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

## Optional

- Integrated speed switch
- Additional output incremental with zero pulse

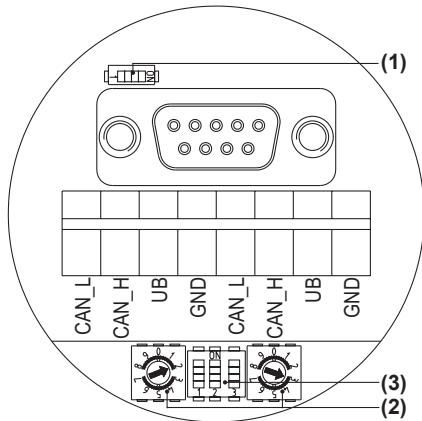
# PMG10 - CANopen®

Solid shaft ø11 mm with EURO flange B10 or housing foot B3  
CANopen® / 13 bit ST / 16 bit MT / Speed switch

## Terminal assignment

### CANopen - View A (see dimension)

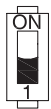
View inside bus connecting box CANopen®



Terminals of the same significance are internally connected and identical in their functions. Max. load on the internal terminal connections UB-UB and GND-GND is 1 A each.

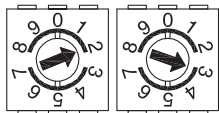
### Terminating resistor (1)

ON = Last user  
OFF = User x

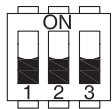


### User address (2)

Defined by rotary switch.  
Example: User address 23



### CANopen - Transmission rate (3)



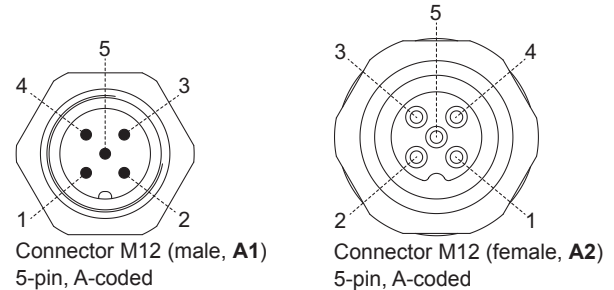
Transmission rate	Setting DIP switches		
	1	2	3
10 kBaud	OFF	OFF	OFF
20 kBaud	OFF	OFF	ON
50 kBaud*	OFF	ON	OFF
125 kBaud	OFF	ON	ON
250 kBaud	ON	OFF	OFF
500 kBaud	ON	OFF	ON
800 kBaud	ON	ON	OFF
1000 kBaud	ON	ON	ON

\* Factory setting

## Terminal assignment

### CANopen - View A1 and A2 (see dimension)

View into connector



Connector M12 (male, A1)  
5-pin, A-coded

Connector M12 (female, A2)  
5-pin, A-coded

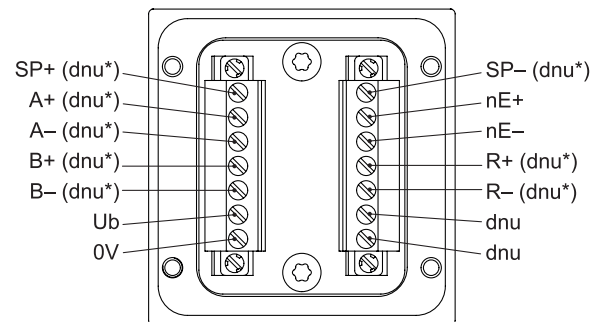
Pin	Connection
1	GND
2	UB
3	GND
4	CAN_H
5	CAN_L

Terminals of the same significance are internally connected and identical in their functions. Max. load on the internal terminal connections GND-GND is 1 A each.

### View B (see dimension)

Connecting terminal terminal box  
Speed switch /  
additional output II (HTL, TTL)

\* Assignment depends on encoder version



## Terminal significance

### CANopen®

Connection	Description
GND	Ground for UB
UB	Voltage supply 10...30 VDC
CAN_H	CAN Bus signal (dominant HIGH)
CAN_L	CAN Bus signal (dominant LOW)

# PMG10 - CANopen®

Solid shaft ø11 mm with EURO flange B10 or housing foot B3

CANopen® / 13 bit ST / 16 bit MT / Speed switch

## 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
SP+	DSL_OUT1 / speed switch (open collector, solid state relay on request)
SP-	DSL_OUT2 / speed switch (0V, solid state relay on request)
dnu	Do not use

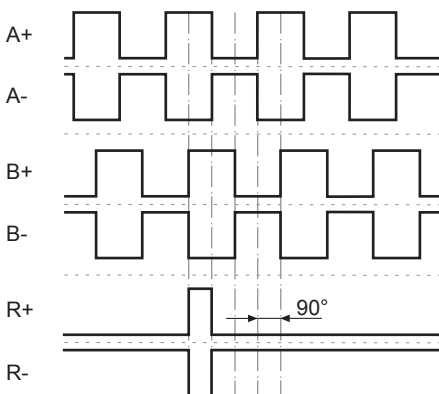
## CANopen® features

Bus protocol	CANopen®
Features	Device Class 2 CAN 2.0B
Device profile	CANopen® CiA DSP 406, V 3.0
Operating modes	<ul style="list-style-type: none"> <li>■ Polling mode (asynch, via SDO)</li> <li>■ Cyclic mode (asynch-cyclic)</li> <li>■ Synch mode (synch-cyclic)</li> <li>■ Acyclic mode (synch-acyclic)</li> </ul>
Diagnosis	The encoder supports the following error warnings: <ul style="list-style-type: none"> <li>■ Position error</li> </ul>
Factory setting	User address 00

## Output signals

### Additional output II (HTL/TTL)

At positive rotating direction (see dimension)



## Trigger level

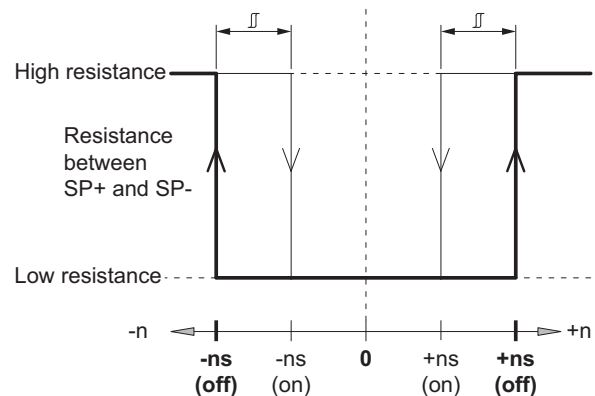
### Incremental HTL/TTL

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

<b>Trigger level</b>	<b>TTL/RS422</b>
High / Low	$\geq 2.5 \text{ V} / \leq 0.5 \text{ V}$
Transmission length	$\leq 550 \text{ m @ } 100 \text{ kHz}$
Output frequency	$\leq 600 \text{ kHz}$

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

## Switching characteristics speed switch

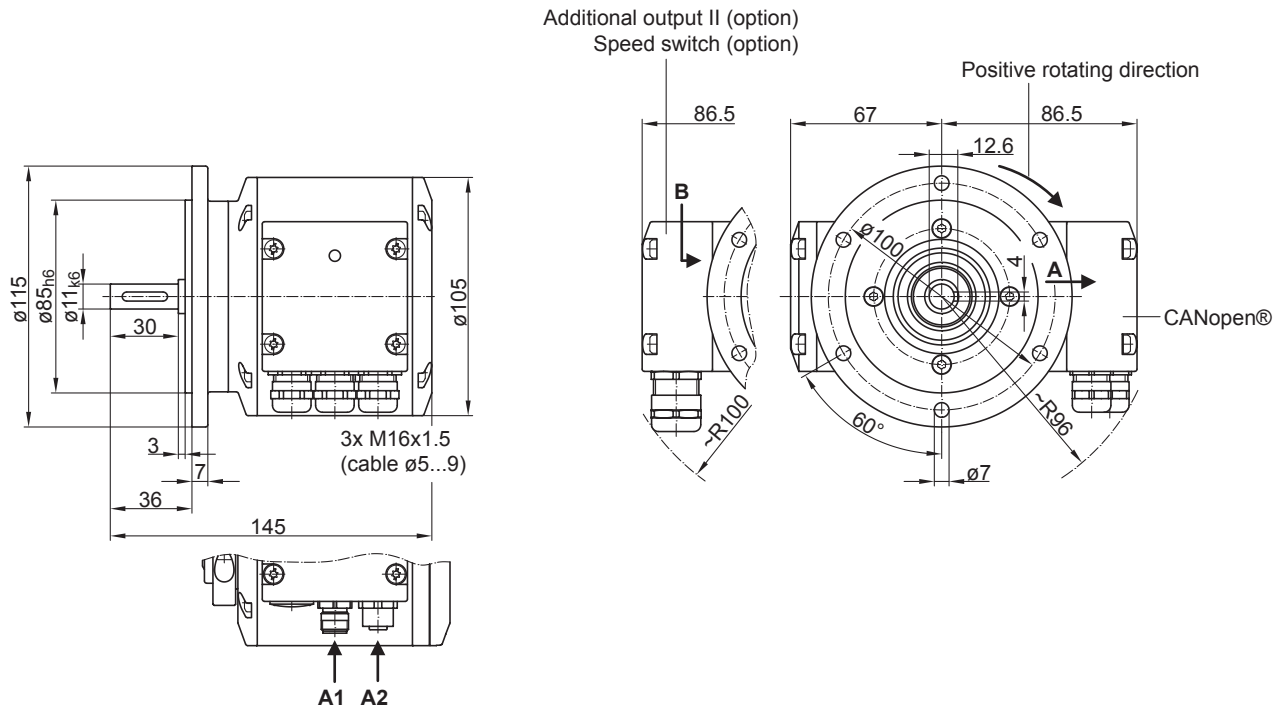


n	Speed
<b>+ns (off)</b>	Switch-off speed at shaft rotation in positive rotating direction (see dimension).
<b>-ns (off)</b>	Switch-off speed at shaft rotation in negative rotating direction (see dimension).
	Switching hysteresis $\Delta$ : 10...100 % (factory setting = 10 % min. 1 Digit)
<b>+ns (on)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

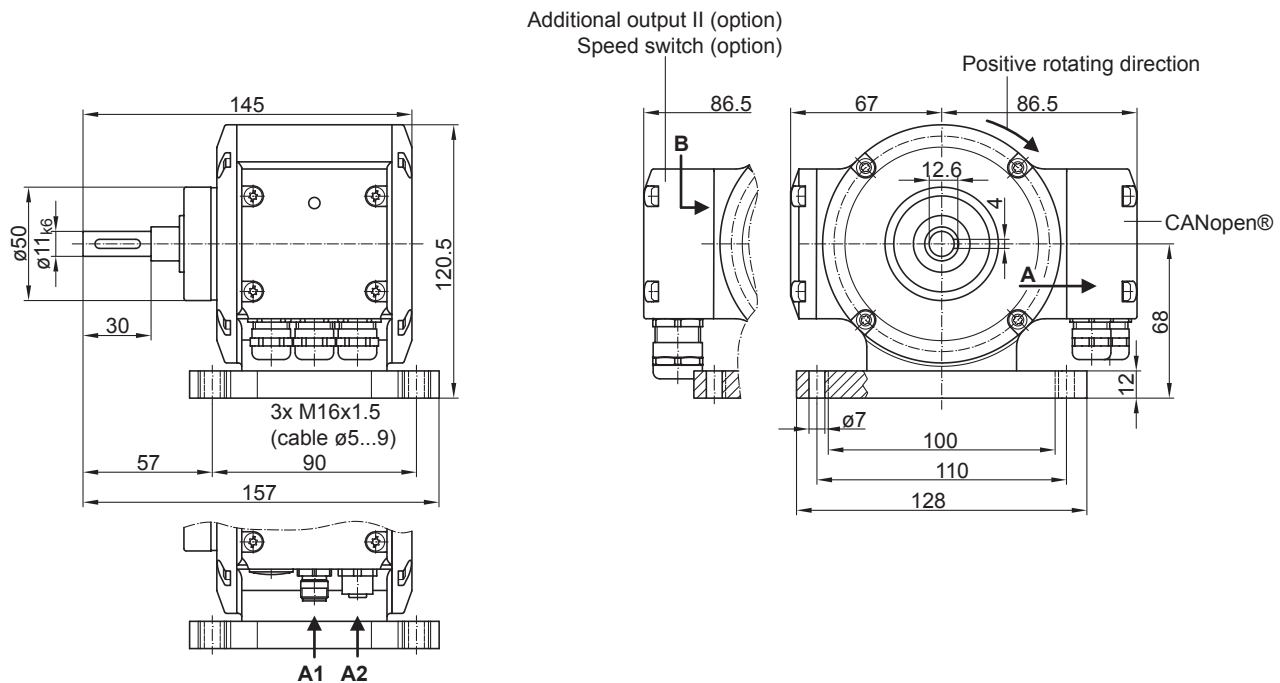
# PMG10 - CANopen®

Solid shaft  $\varnothing 11$  mm with EURO flange B10 or housing foot B3  
CANopen® / 13 bit ST / 16 bit MT / Speed switch

## Dimensions



Version with Euro flange (B10)



Version with housing foot (B3)

# PMG10 - CANopen®

Solid shaft ø11 mm with EURO flange B10 or housing foot B3

CANopen® / 13 bit ST / 16 bit MT / Speed switch

**Ordering reference**

	PMG10	#	-	S	H	#	.	1	#	C6	3	.	#	0	0	#	A
<b>Product</b>	PMG10																
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 cable glands M16, radial																	5
Bus connecting box with 2 connectors M12, radial																	1
Bus connecting box with 3 cable glands M16, radial + terminal box with 1 cable gland M20, radial																	F
Bus connecting box with 2 connectors M12, radial + terminal box with 1 cable gland M20, radial																	Z
<b>Supply voltage (field bus)</b>																	
10...30 VDC, CANopen (DS 406)																	C6
<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
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
<b>Operating temperature</b>																	
-40...+85 °C																	A

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

## PMG10 - CANopen®

Solid shaft  $\varnothing$ 11 mm with EURO flange B10 or housing foot B3  
CANopen® / 13 bit ST / 16 bit MT / Speed switch

### 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](http://www.baumer.com) or on request.

### Accessories

#### Mounting accessories

Spring disk coupling K 35 (shaft  $\varnothing$ 6...12 mm)

Spring disk coupling K 50 (shaft  $\varnothing$ 11...16 mm)

Spring disk coupling K 60 (shaft  $\varnothing$ 11...22 mm)