Baumer
Passion for Sensors

Absolute encoders

PMG10P - CANopen®

Solid shaft ø11 mm with EURO flange B10 or housing foot B3 / CANopen® / 13 bit ST / 16 bit MT
Speed switch, number of pulses and switching speed freely programmable

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	≤200 mA
Initializing time	≤ 500 ms after power on
Interface	CANopen®
Function	Multiturn
Transmission rate	10 … 1000 kBaud
Device adress	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
Programming interface	RS485 (≤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 (bus connecting box) 4 LEDs in device back side
Approval	CE UL approval / E217823

Technical data - electrical ratings (speed switch)

Switching accuracy	± 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; ≤100 mA
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	≤6000 rpm
Range of switching speed	ns (off) = ±2...6000 rpm, factory setting 6000 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...+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

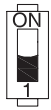### CANopen - View A *(see dimension)*
View inside bus connecting box CANopen®
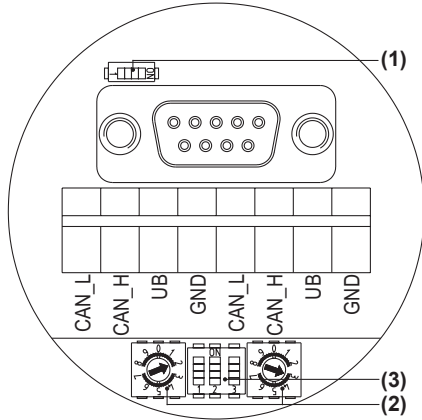
Terminals of the same significance are internally connected and identical in their functions. Max. load on the internal terminal connections UB-UB and GND-GND is 1 A each.
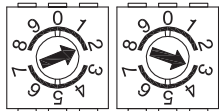
Terminating resistor (1)
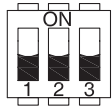ON = Last user
OFF = User x

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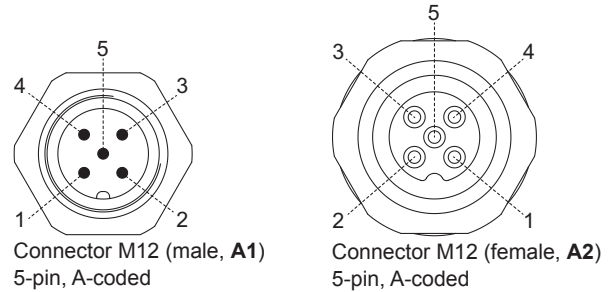
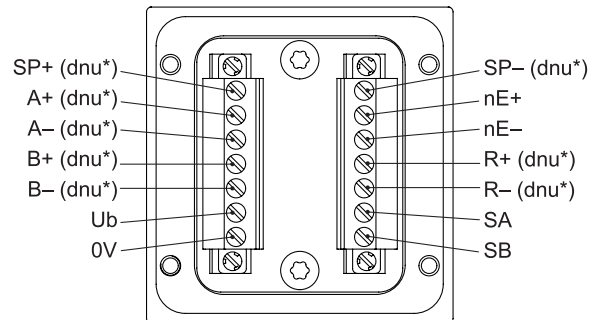| Pin	Connection
1	GND
2	UB
3	GND
4	CAN_H
5	CAN_L

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
Programming interface / 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)

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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)
SA	RS485+ / programming interface
SB	RS485– / programming interface
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	▪ Polling mode (asynch, via SDO) ▪ Cyclic mode (asynch-cyclic) ▪ Synch mode (synch-cyclic) ▪ Acyclic mode (synch-acyclic)
Diagnosis	The encoder supports the following error warnings: ▪ Position errror
Factory setting	User address 00

Output signals

Additional output II (HTL/TTL)
At positive rotating direction *(see dimension)*
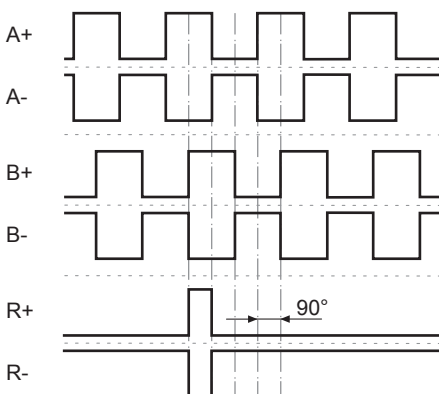
Trigger level

Incremental HTL/TTL
Electrically isolated:
The output TTL/HTL (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)

Switching characteristics

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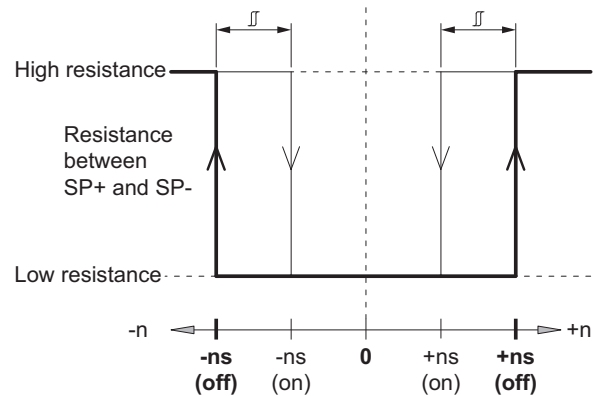
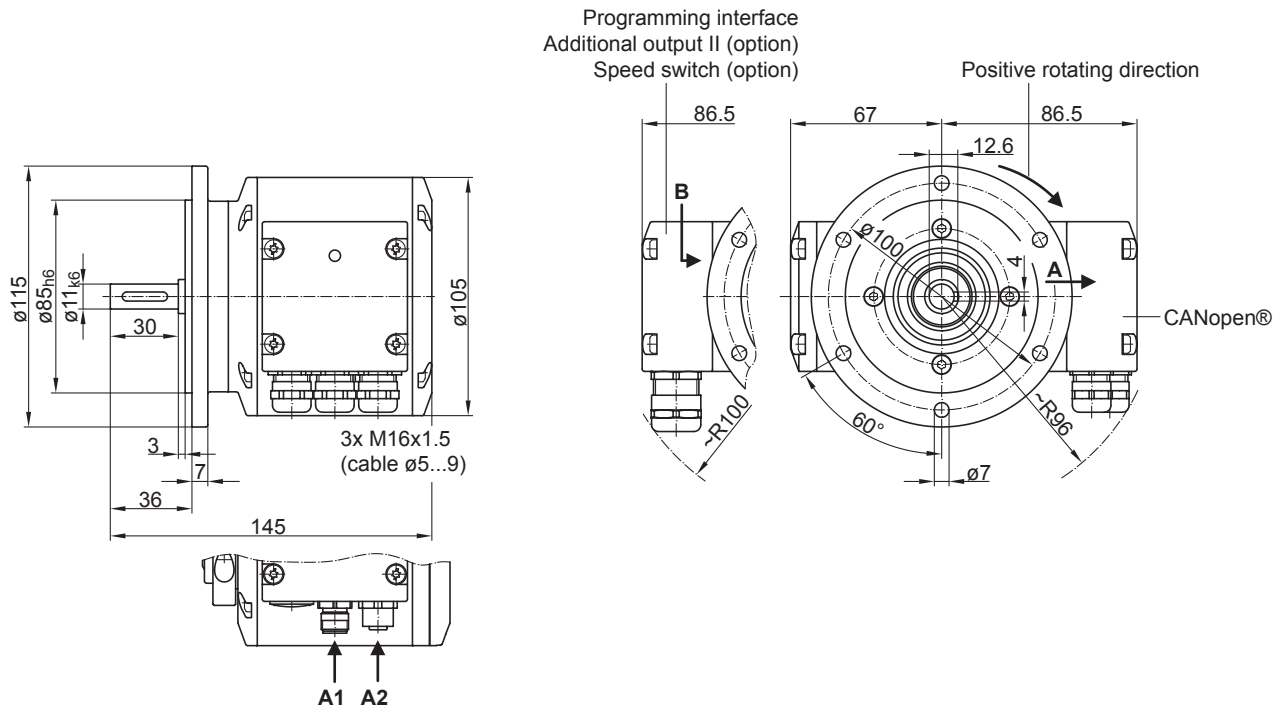| n	Speed
+ns (off)	Switch-off speed at shaft rotation in positive rotating direction *(see dimension)*.
-ns (off)	Switch-off speed at shaft rotation in negative rotating direction *(see dimension)*.
	Switching hysteresis ∬: 10...100 % (factory setting = 10 % min. 1 Digit)
+ns (on)	Switch-on speed at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

Dimensions

Programming interface
Additional output II (option)
Speed switch (option)

Positive rotating direction

CANopen®

Version with Euro flange (B10)

Programming interface
Additional output II (option)
Speed switch (option)

Positive rotating direction
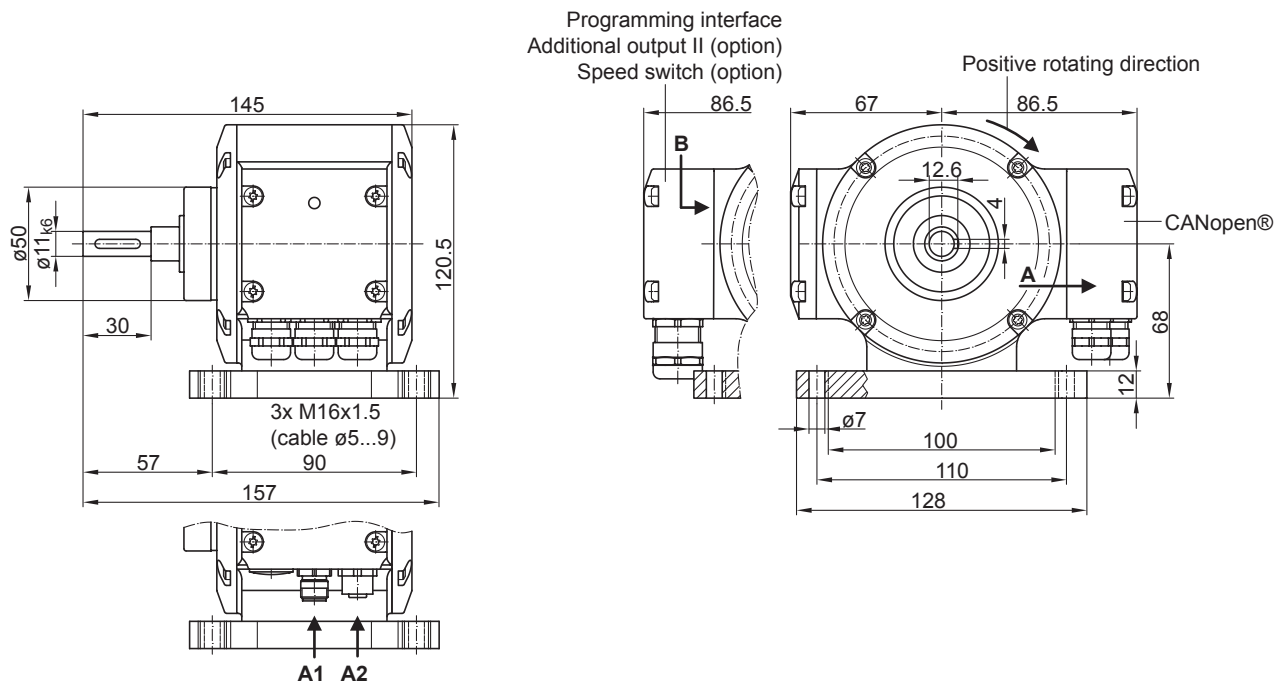
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Version with housing foot (B3)

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Speed switch, number of pulses and switching speed freely programmable

Ordering reference

	PMG10P	#	-	S	H	#	.	1	#	C6	3	.	#	0	0	#	A
Product																	
Absolute encoder	PMG10P																
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, abrasive environment						D											
IP 66 and IP 67, optimized for oily, wet environment						L											
Solid shaft																	
ø11 mm, featherkey 4 mm								1									
Connection																	
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								
Supply voltage (field bus)																	
10...30 VDC, CANopen (DS 406)										C6							
Resolution singleturn position																	
13 Bit											3						
Resolution multiturn position																	
No multiturn signal													0				
16 Bit													6				
Resolution speed																	
No speed signal														0			
Resolution supplement I																	
No additional output I															0		
Resolution supplement II																	
No additional output II																0	
1024 ppr TTL/HTL push-pull (Vin=Vout), 6 channels, electrically isolated[2]																5	
1024 ppr TTL (RS422), 6 channels[2]																6	
Operating temperature																	
-40...+85 °C																	A

(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

Programming accessories

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