

PMG10P - Profibus DP

Solid shaft $\varnothing 11$ mm with EURO flange B10 or housing foot B3 / Profibus-DPV0 or DPV2 / 13 bit ST / 16 bit MT

Speed switch, number of pulses and switching speed freely programmable

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

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	Profibus-DPV0/V2
Function	Multiturn
Transmission rate	9.6 ... 12000 kBaud
Device address	Rotary switch in bus connecting box (type-specific)
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 EAC

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)	$\varnothing 115$ mm
Shaft type	$\varnothing 11$ mm solid shaft
Flange	EURO flange B10 Housing foot B3
Protection EN 60529	IP 66/IP 67
Operating speed	≤ 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 kgcm ²
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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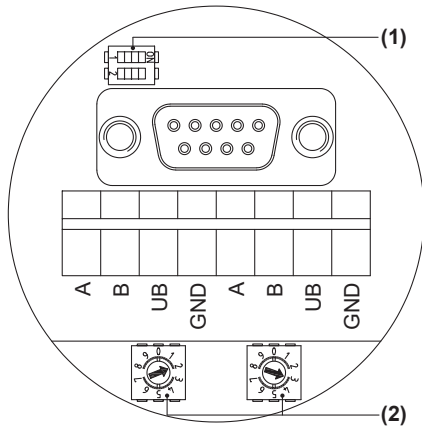
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Terminal assignment

Profibus-DP - View A (see dimension)

View inside bus connecting box Profibus

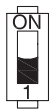


Terminals of the same significance are internally connected and identical in their functions. Max. load on the internal terminal connections UB-UB and GND-GND is 1 A each.

Terminating resistor (1)

ON = Last user

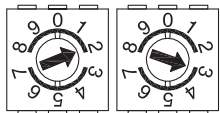
OFF = User x



User address (2)

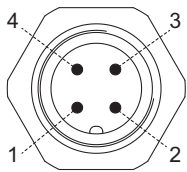
Defined by rotary switch.

Example: User address 23



View A1 (see dimension)

View into connector bus "voltage supply"



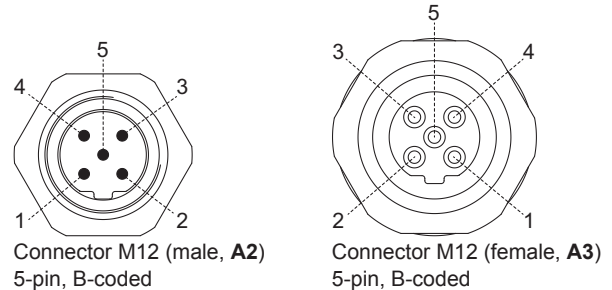
Connector M12 (male)
4-pin, A-coded

Pin	Connection
1	UB
2	dnu
3	GND
4	dnu

Terminal assignment

View A2 and A3 (see dimension)

View into connector bus „data transmission“



Connector M12 (male, **A2**)
5-pin, B-coded

Connector M12 (female, **A3**)
5-pin, B-coded

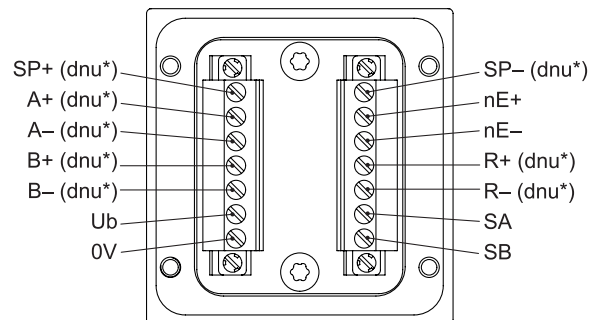
Pin	Connection
2	A
4	B

View B (see dimension)

Connecting terminal terminal box

Programming interface / speed switch /
additional output II (HTL, TTL)

* Assignment depends on encoder version



Terminal significance

Profibus

Connection	Description
GND	Ground for UB
UB	Voltage supply 10...30 VDC
A	Negative serial data transmission
B	Positive serial data transmission
dnu	Do not use

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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

Profibus-DP features

Bus protocol	Profibus-DP V0
Features	Device Class 1 and 2
Data exchange functions	Input: Position value Output: Preset value
Preset value	The „Preset“ parameter can be used to set the encoder to a predefined value that corresponds to a specific axis position of the system.
Parameter functions	Rotating direction: The relationship between the rotating direction and rising or falling output code values can be set in the operating parameter. Scaling: The parameter values set the number of steps per turn and the overall resolution.
Diagnostic	The encoder supports the following error messages: ■ Position error
Factory setting	User address 00

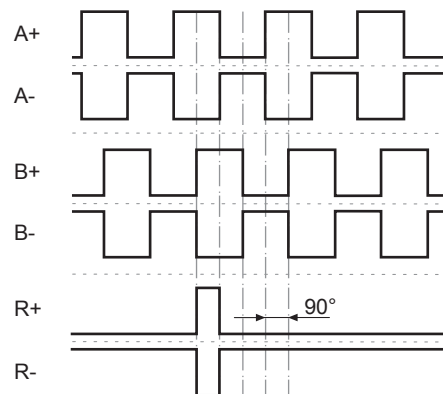
Profibus-DP features

Bus protocol	Profibus-DP V2
Features	Device Class 3 and 4
Data exchange functions	Input: Position value Output: Preset value
Preset value	The „Preset“ parameter can be used to set the encoder to a predefined value that corresponds to a specific axis position of the system.
Parameter functions	Rotating direction: The relationship between the rotating direction and rising or falling output code values can be set in the operating parameter. Scaling: The parameter values set the number of steps per turn and the overall resolution.
Diagnostic	The encoder supports the following error messages: ■ Position error
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.

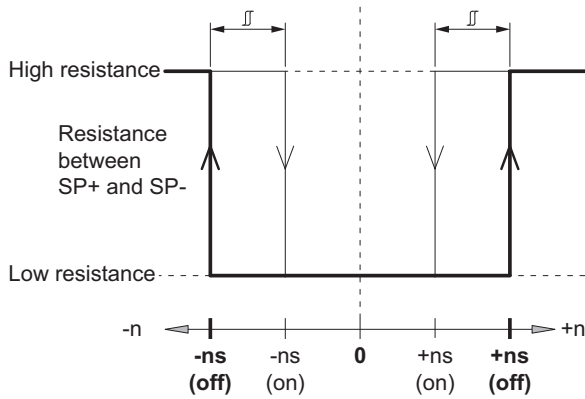
Trigger level	TTL/RS422
High / Low	≥ 2.5 V / ≤ 0.5 V
Transmission length	≤ 550 m @ 100 kHz
Output frequency	≤ 600 kHz
Trigger level	TTL/HTL ($V_{in} = V_{out}$)
High / Low	≥ 2.5 V / ≤ 0.5 V (TTL) $\geq U_b - 3$ V / ≤ 1.5 V (HTL)
Transmission length	≤ 550 m @ 100 kHz (TTL) ≤ 350 m @ 100 kHz (HTL)
Output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

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Switching characteristics speed switch



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

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Ordering reference

	PMG10P	#	-	S	H	#	.	1	#	##	.	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 3 connectors M12, radial + terminal box with 1 cable gland M20, radial									G								
Supply voltage (field bus)	10...30 VDC, Profibus-DPV0												P0					
	10...30 VDC, Profibus-DPV2												P2					
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																	

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

(2) Factory setting, programmable

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

11191145 Programming cable for the HMG10P/PMG10P bus interfaces series

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Accessories

Programming accessories

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