

PMG10 - Incremental

 Solid shaft $\varnothing 11$ mm with EURO flange B10

Integrated speed switch - Magnetic sensing - Number of pulses and switching speed freely programmable (option)

Overview

- Incremental encoder (optionally programmable)
- HTL/TTL output driver for cable length up to 350 m
- Very high resistance to shock and vibrations
- Two-sided insulated bearing system with hybrid bearings
- Special protection against corrosion CX (C5-M)
- Large terminal box, turn by 180°
- Function display via LEDs



Technical data

Technical data - electrical ratings

Voltage supply	4.75...30 VDC
Short-circuit proof	Yes
Consumption w/o load	≤ 100 mA
Initializing time	≤ 500 ms after power on
Pulses per revolution	1 ... 131072
Phase shift	$90^\circ \pm 20^\circ$
Duty cycle	40...60 %
Reference signal	Zero pulse, width 90°
Sensing method	Magnetic
Output signals	A+, B+, R+, A-, B-, R- Error output nE+, nE-
Output stages	TTL/HTL ($V_{in} = V_{out}$)
Programming interface	RS485 (≤ 600 m)
Programmable parameters	Pulse number Switch-off and switch-on speeds Switching delay time
Diagnostic function	Function control
Status indicator	4 LEDs in device back side
Interference immunity	EN 61000-6-2
Emitted interference	EN 61000-6-3
Approval	CE UL approval / E217823 EAC

Technical data - electrical ratings (speed switch)

Switching accuracy	± 2 % (or 1 Digit)
Switching outputs	1 output (Open collector)
Output switching capacity	30 VDC; ≤ 100 mA

Technical data - electrical ratings (speed switch)

Switching hysteresis	10 ... 100 % adjustable
Switching delay time	≤ 20 ms

Technical data - mechanical design

Size (flange)	$\varnothing 115$ mm
Shaft type	$\varnothing 11$ mm solid shaft
Admitted shaft load	≤ 450 N axial ≤ 650 N radial
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, factory setting 6000 rpm
Operating torque typ.	10 Ncm
Rotor moment of inertia	1 kgcm ²
Material	Housing: aluminium alloy Shaft: stainless steel
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
Corrosion protection	IEC 60068-2-52 Salt mist for ambient conditions CX (C5-M) according to ISO 12944-2
Connection	Terminal box Flange connector M23
Weight approx.	1.9 kg (depending on version)

Optional

Incremental output and speed switch freely programmable or fixed ex works

Integrated speed switch

Second incremental output, not galvanic isolated

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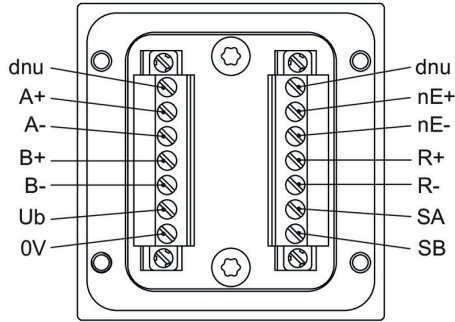
Integrated speed switch - Magnetic sensing - Number of pulses and switching speed freely programmable (option)

Terminal assignment

1x terminal box - View B (see dimensions)

Incremental output II

Connection reference -P

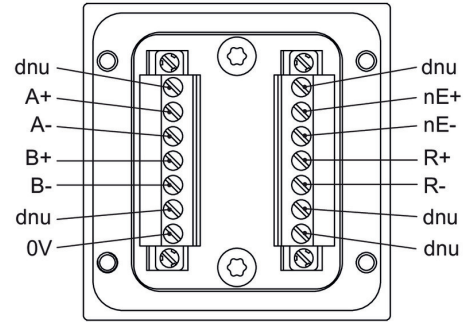


Terminal assignment

2x terminal box - View B (see dimensions)

Incremental output II

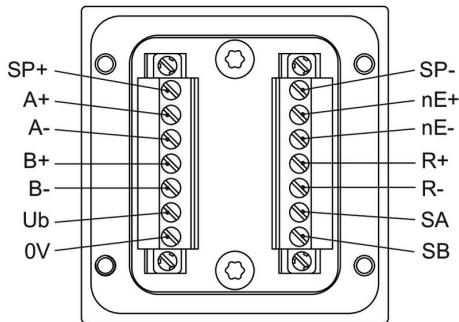
Connection reference -M



1x terminal box - View B (see dimensions)

Incremental output II + speed switch

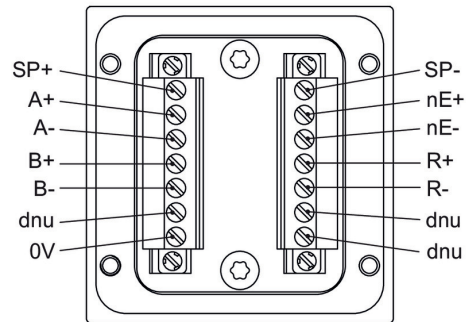
Connection reference -P



2x terminal box - View B (see dimensions)

Incremental output II + speed switch

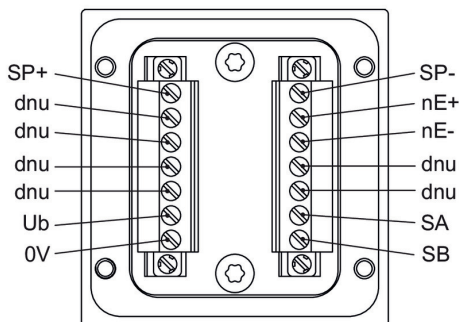
Connection reference -M



1x terminal box - View B (see dimensions)

Speed switch

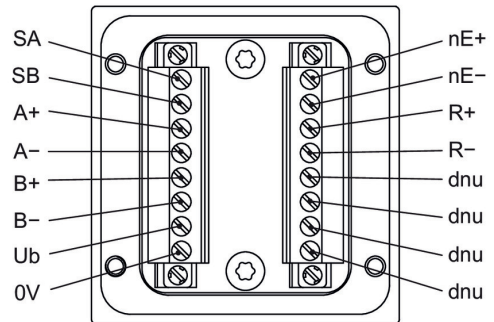
Connection reference -P



2x terminal box - View A (see dimensions)

Incremental output I

Connection reference -M



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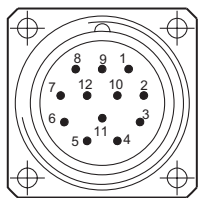
Terminal assignment

1x flange connector M23 - View B (see dimensions)

Incremental output II

Connection reference -H

Pin	Assignment
1	B-
2	SB
3	R+
4	R-
5	A+
6	A-
7	dnu
8	B+
9	dnu
10	0 V
11	SA
12	Ub



Flange socket M23
(male, 12-pin),
CW

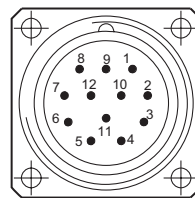
Terminal assignment

1x flange connector M23 - View B (see dimensions)

Speed switch

Connection reference -H

Pin	Assignment
1	dnu
2	SB
3	dnu
4	dnu
5	dnu
6	dnu
7	SP+
8	dnu
9	SP-
10	0 V
11	SA
12	Ub



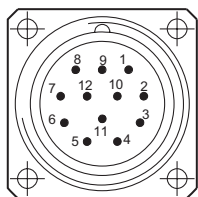
Flange socket M23
(male, 12-pin),
CW

1x flange connector M23 - View B (see dimensions)

Incremental output II + speed switch

Connection reference -H

Pin	Assignment
1	B-
2	SB
3	R+
4	R-
5	A+
6	A-
7	SP+
8	B+
9	SP-
10	0 V
11	SA
12	Ub



Flange socket M23
(male, 12-pin),
CW

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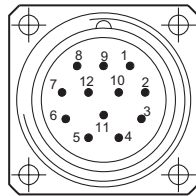
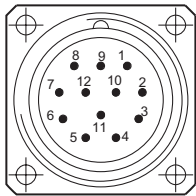
Terminal assignment

2x flange connector M23 - View B / A (see dimensions)

Incremental output II / incremental output I

Connection reference -L

Pin	View B/Inc. outp. II	View A/Inc. outp. I
1	B-	B-
2	dnu	dnu
3	R+	R+
4	R-	R-
5	A+	A+
6	A-	A-
7	dnu	SA
8	B+	B+
9	dnu	SB
10	0 V	0 V
11	dnu	dnu
12	dnu	Ub



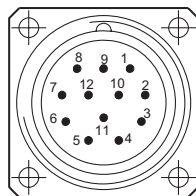
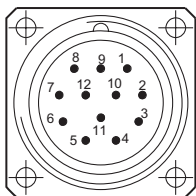
Flange socket M23 (male, 12-pin), CW

2x flange connector M23 - View B / A (see dimensions)

Incremental output II + speed switch / incremental output I

Connection reference -L

Pin	View B/Inc. outp. II + DSL	View A/Inc. outp. I
1	B-	B-
2	dnu	dnu
3	R+	R+
4	R-	R-
5	A+	A+
6	A-	A-
7	SP+	SA
8	B+	B+
9	SP-	SB
10	0 V	0 V
11	dnu	dnu
12	dnu	Ub



Flange socket M23 (male, 12-pin), CW

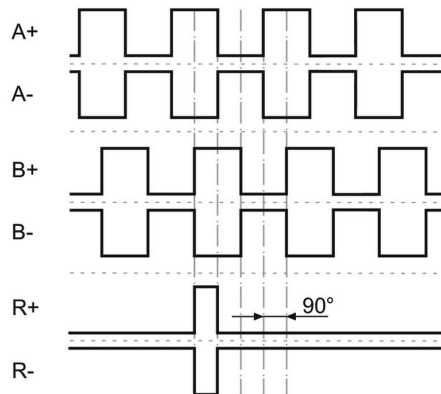
Terminal significance

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)
SP-	DSL_OUT2 / speed switch (0V)
SA	RS485+ / programming interface
SB	RS485- / programming interface
dnu	Do not use

Output signals

HTL/TTL

Positive rotating direction when looking at the flange (see dimensions)



Trigger level

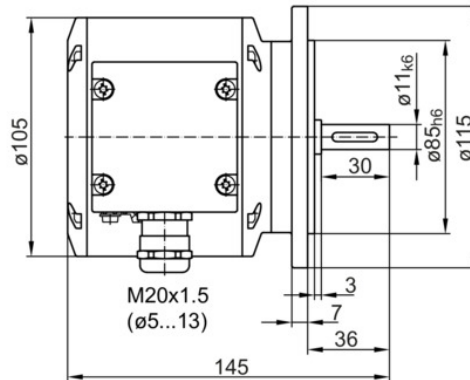
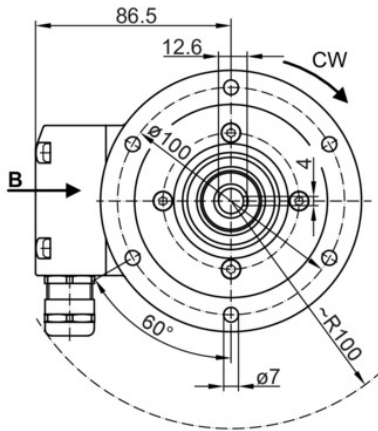
Trigger level	HTL/TTL ($V_{in} = V_{out}$)
High / Low	≥ 2.5 V / ≤ 0.5 V (TTL) $\geq U_b - 3$ V / ≤ 1.5 V (HTL)
Transmission length	≤ 550 m at 100 kHz (TTL) ≤ 350 m at 100 kHz (HTL)
Output frequency	≤ 600 kHz (TTL); ≤ 350 kHz (HTL)

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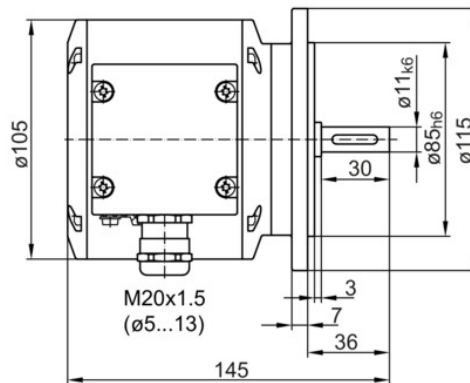
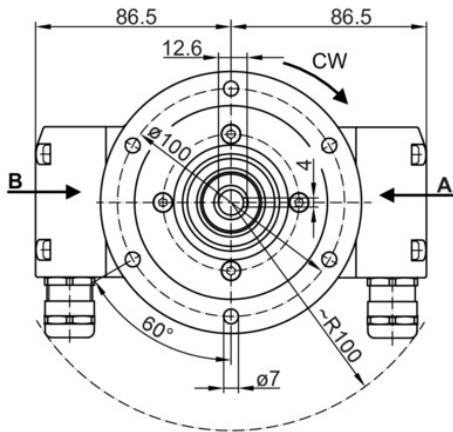
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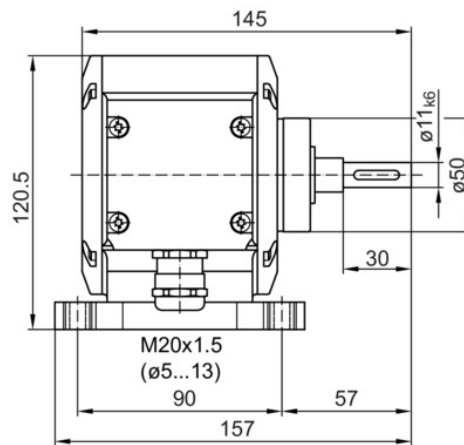
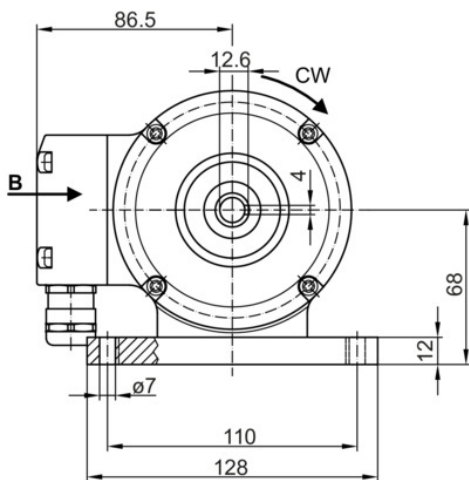
Dimensions



With EURO flange B10 and 2x terminal box (connection reference -M)



With EURO flange B10 and 2x terminal box (connection reference -M)



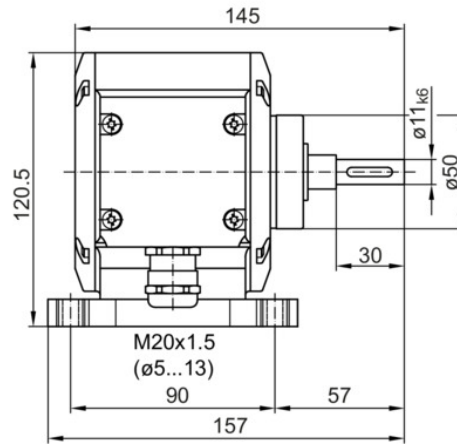
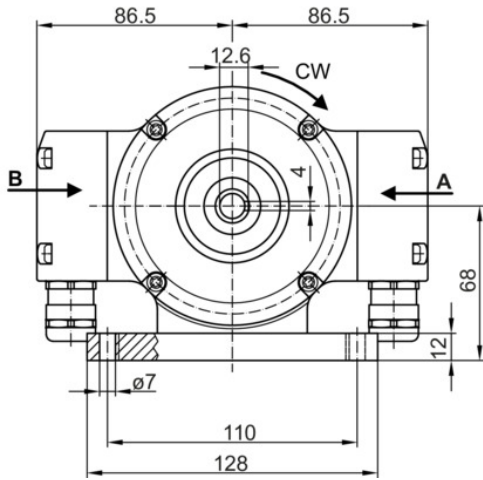
With housing foot and 1x terminal box (connection reference -P)

PMG10 - Incremental

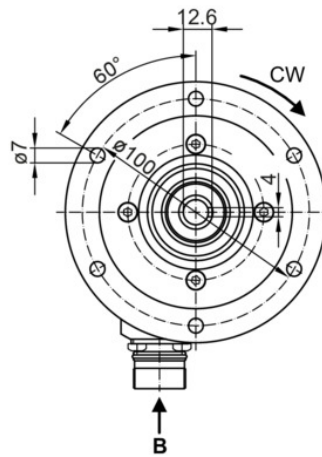
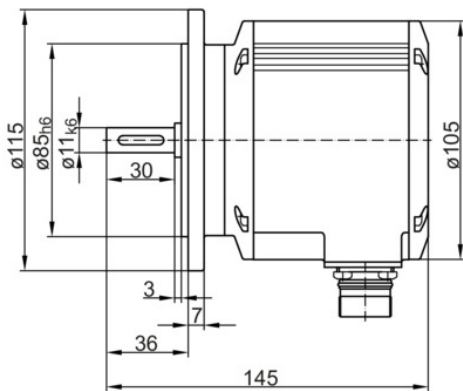
Solid shaft $\varnothing 11$ mm with EURO flange B10

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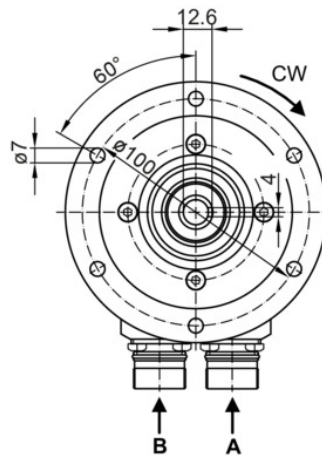
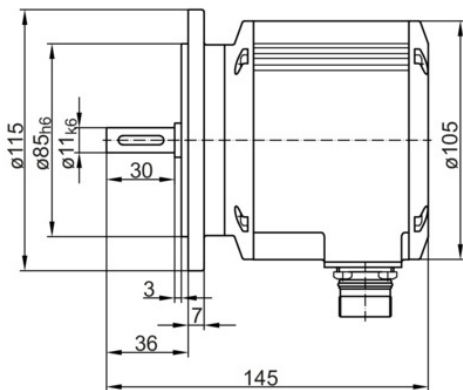
Dimensions



With housing foot and 2x terminal box (connection reference -M)



With EURO flange B10 and 1x flange connector M23 (connection reference -H)



With EURO flange B10 and 2x flange connector M23 (connection reference -L)

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Ordering reference

	PMG10	#	#	-	S	#	#	.	1	#	U0	.	0	0	0	#	#	.	G
Product	PMG10																		
Programmable																			
Non programmable																			
Programmable																			
Digital speed switch																			
Without																			
With																			
Shaft type																			
Solid shaft																			
Flange (Solid shaft)																			
Mounting foot B3, hybrid bearings																			
EURO flange B10, hybrid bearings																			
Protection class																			
IP 66 and IP 67, optimized for dusty, abrassive environment																			
IP 66 and IP 67, optimized for oily, wet environment																			
IP 66 and IP 67, optimized for tropical environment																			
Solid shaft																			
Ø11 mm, featherkey 4 mm																			
Connection																			
Terminal box radial, cable gland M20 (assignment incremental / speed switch)																			
Terminal box 2x radial, cable gland M20																			
Flange socket radial, M23, 12 pin, male, CW (assignment incremental / speed switch)																			
Flange socket radial, 2x M23, 12 pin, male, CW (assignment incremental / speed switch)																			
Supply voltage																			
4,75...30 VDC																			
Resolution singleturn position																			
No position signal																			
Resolution multiturn position																			
No multiturn signal																			
Resolution speed																			
No speed signal																			
Resolution supplement I																			
No additional output I																			
512 ppr TTL/HTL push-pull (Vin=Vout), 6 channels																			
1024 ppr TTL/HTL push-pull (Vin=Vout), 6 channels																			
2048 ppr TTL/HTL push-pull (Vin=Vout), 6 channels																			
3072 ppr TTL/HTL push-pull (Vin=Vout), 6 channels																			
4096 ppr TTL/HTL push-pull (Vin=Vout), 6 channels																			
5000 ppr TTL/HTL push-pull (Vin=Vout), 6 channels																			
8192 ppr TTL/HTL push-pull (Vin=Vout), 6 channels																			

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Ordering reference

PMG10 # # - S # # . 1 # U0 . 0 0 0 # # . G

Resolution supplement II

No additional output II	0
512 ppr TTL/HTL push-pull (Vin=Vout), 6 channels	F
1024 ppr TTL/HTL push-pull (Vin=Vout), 6 channels	A
2048 ppr TTL/HTL push-pull (Vin=Vout), 6 channels	B
3072 ppr TTL/HTL push-pull (Vin=Vout), 6 channels	U
4096 ppr TTL/HTL push-pull (Vin=Vout), 6 channels	T
5000 ppr TTL/HTL push-pull (Vin=Vout), 6 channels	M
8192 ppr TTL/HTL push-pull (Vin=Vout), 6 channels	R

Operating temperature

-40...+95 °C

G

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)

Connectors and cables

- Sensor cable for encoders HEK 8
- Sensor cable for encoders HEK 17
- 1191144 Programming cable for HMG10P/PMG10P (SSI) with terminal box

Programming accessories

- 1190106 Z-PA.SDL.1 - WLAN-Adapter