Absolute encoders - bus interfaces

Solid shaft ø11 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

PMG10P - Profibus DP

PMG10P - picture similar

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 adress	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

Technical data - mechanical design

Size (flange)	ø115 mm
Shaft type	ø11 mm solid shaft
Flange	EURO flange B10 Housing foot B3
Protection DIN 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
Materials	Housing: aluminium alloy Shaft: stainless steel
Corrosion protection	IEC 60068-2-52 Salt mist for ambient conditions C5-M (CX) 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

Technical data - electrical ratings (speed switches)

Switching accuracy	±2 % (or 1 Digit)
Switching outputs	1 output (Open collector, solid state relay on request)
Output switching capacity	30 VDC; ≤100 mA
Switching delay time	≤20 ms

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PMG10P - Profibus DP

Part number

| PMG10P | | -S | | | .1 | | .3 | 00 | .A |

Additional output

0	Without
5	1024 ppr* TTL/HTL (Vin=Vout), 6 channels, electrically isolated
6	1024 ppr* TTL/RS422, 6 channels

Resolution multiturn

| 0 | Without |
| 6 | 16 bit |

Voltage supply / interface

| P0 | 10…30 VDC, Profibus-DPV0 |
| P2 | 10…30 VDC, Profibus-DPV2 |

Connection

| F | 1x bus connecting box with 3 cable glands M16, radial + 1x terminal box with 1 cable gland M20, radial |
| G | 1x bus connecting box with 3 connectors M12, radial + 1x terminal box with 1 cable gland M20, radial |

Shaft diameter

| 1 | ø11 mm with key 4 mm |

Protection

| D | IP 66 and IP 67, optimized for dusty environments |
| L | IP 66 and IP 67, optimized for oily and wet environments |

Flange

| H | EURO flange B10, shaft insulation hybrid bearing |
| A | Housing foot B3, shaft insulation hybrid bearing |

Speed switch

| | Without |
| D | With speed switch / switching speed 6000 rpm* (Standard: Open collector, solid state relay on request) |

* Factory setting, programmable

Absolute encoders - bus interfaces

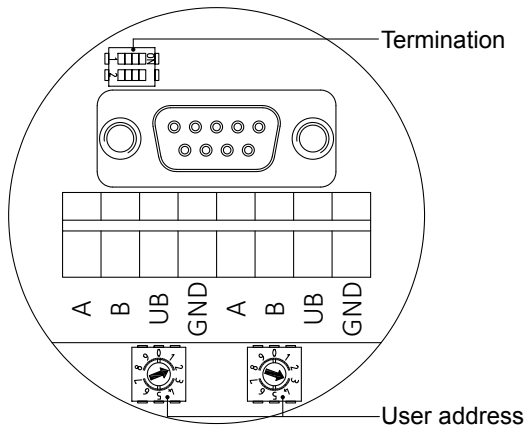**Solid shaft ø11 mm with EURO flange B10 or housing foot B3**
Profibus-DPV0 or DPV2 / 13 bit ST / 16 bit MT / Speed switch
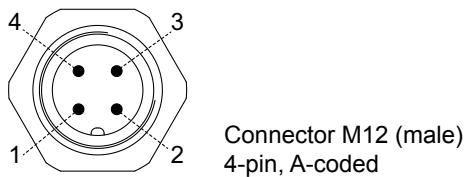**Number of pulses and switching speed freely programmable**

PMG10P - Profibus DP

Profibus-DP V0 - Terminal assignment
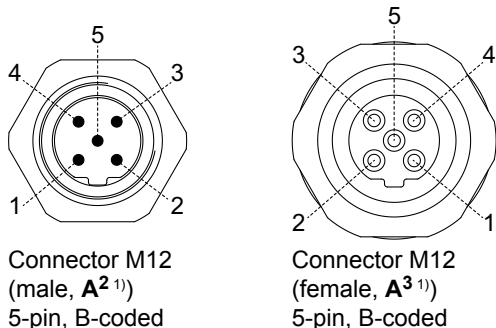
View A [1] - View inside bus connecting box

View A[1] [1] - View into connector „Voltage supply"

male	Connection	Description
1	UB	Voltage supply 10...30 VDC
3	GND	Ground connection for UB

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

View A[2] [1] and A[3] [1] - View into connector „Data transmission"

male / female	Connection	Description
2	A	Negative serial data transmission
4	B	Positive serial data transmission

Connector M12
(male, **A[2]** [1])
5-pin, B-coded

Connector M12
(female, **A[3]** [1])
5-pin, B-coded

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.
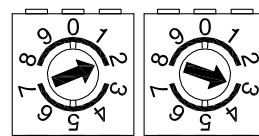
[1] See dimensions

Profibus-DP V0 - Features

Bus protocol	Profibus-DP V0
Profibus-Features	Device Class 1 and 2
Data Exch. functions	Input: Position value Output: Preset value
Preset value	The „Preset" parameter can be used to set the encoder to a pre-defined 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 V0 - Termination
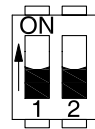
both ON = final user
both OFF = user xx

Profibus-DP V0 - User address

Defined by rotary switch.
Example: User address 23

Absolute encoders - bus interfaces
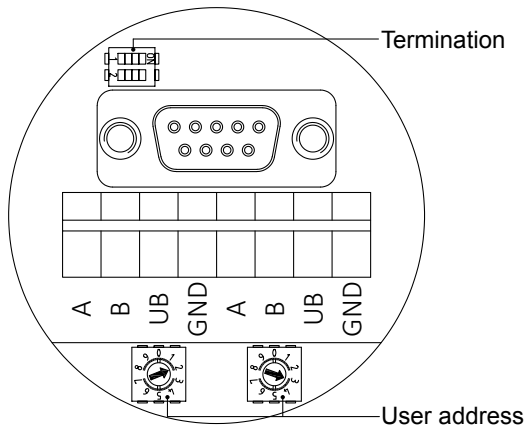## Solid shaft ø11 mm with EURO flange B10 or housing foot B3
Profibus-DPV0 or DPV2 / 13 bit ST / 16 bit MT / Speed switch
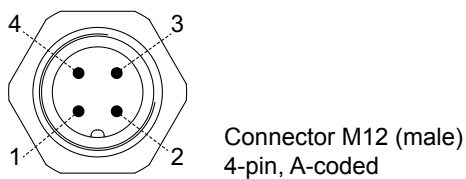## Number of pulses and switching speed freely programmable

PMG10P - Profibus DP

Profibus-DP V2 - Terminal assignment

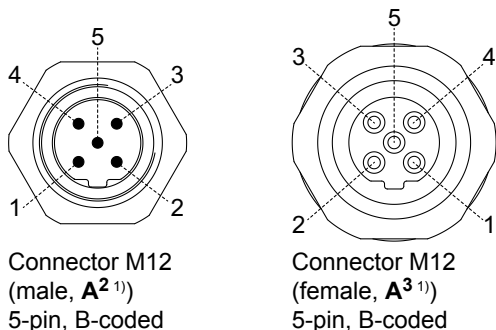**View A** [1] - View inside bus connecting box

Termination

User address

View A¹ [1] - View into connector „Voltage supply"

male	Connection	Description
1	UB	Voltage supply 10...30 VDC
3	GND	Ground connection for UB

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

View A² [1] **and A³** [1] - View into connector „Data transmission"

male / female	Connection	Description
2	A	Negative serial data transmission
4	B	Positive serial data transmission

Connector M12
(male, **A²** [1])
5-pin, B-coded

Connector M12
(female, **A³** [1])
5-pin, B-coded

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.
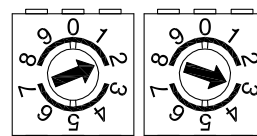
[1] See dimensions

Profibus-DP V2 - Features

Bus protocol	Profibus-DP V2
Profibus-Features	Device Class 3 and 4
Data Exch. functions	Input: Position value Output: Preset value
Preset value	The „Preset" parameter can be used to set the encoder to a pre-defined 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 V2 - Termination
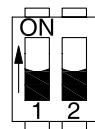
both ON = final user
both OFF = user xx

Profibus-DP V2 - User address

Defined by rotary switch.
Example: User address 23

Absolute encoders - bus interfaces
Solid shaft ø11 mm with EURO flange B10 or housing foot B3
Profibus-DPV0 or DPV2 / 13 bit ST / 16 bit MT / Speed switch
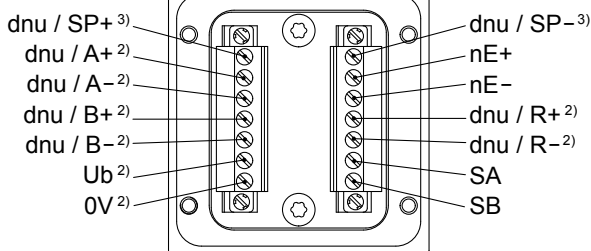**Number of pulses and switching speed freely programmable**

PMG10P - Profibus DP

Speed switch / additional output incremental - Terminal significance

Ub [2]	Voltage supply
0V [2]	Ground
A+ [2]	Output signal channel 1
A− [2]	Output signal channel 1 inverted
B+ [2]	Output signal channel 2 (offset by 90° to channel 1)
B− [2]	Output signal channel 2 inverted
R+ [2]	Zero pulse (reference signal)
R− [2]	Zero pulse inverted
nE+	System OK+ / error output
nE−	System OK− / error output inverted
SP+ [3]	DSL_OUT1 / speed switch (Open collector, solid state relay on request)
SP− [3]	DSL_OUT2 / speed switch (0V, solid state relay on request)
SA	RS485+ / programming interface
SB	RS485− / programming interface
dnu	Do not use

Speed switch / additional output incremental - Terminal assignment terminal box

View B [1]

dnu / SP+ [3]
dnu / A+ [2]
dnu / A− [2]
dnu / B+ [2]
dnu / B− [2]
Ub [2]
0V [2]

dnu / SP− [3]
nE+
nE−
dnu / R+ [2]
dnu / R− [2]
SA
SB

Additional output incremental - Trigger level

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)

Electrically isolated:
The output TTL/HTL (Vin = Vout) at the additional output incremental is electrically isolated and requires a separate power supply.
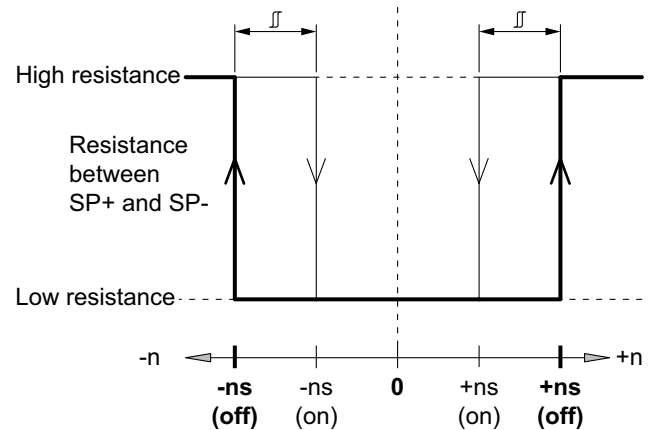
[1] See dimensions
[2] Additional output incremental (option)
[3] Speed switch (option)

Additional output incremental - Output signals

Version with additional output incremental at positive rotating direction [1]

A+
A−
B+
B−
R+ Zero pulse+
R− Zero pulse−
90°
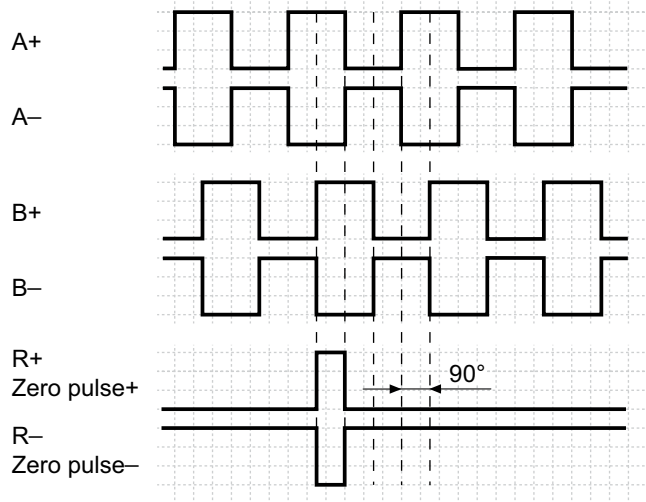
Speed switch - Switching characteristics

High resistance
Resistance between SP+ and SP-
Low resistance

-n ← +n
-ns (off)   -ns (on)   0   +ns (on)   +ns (off)

n = Speed

+ns (off) = Switch-off speed at shaft rotation in positive rotating direction [1].

-ns (off) = Switch-off speed at shaft rotation in negative rotating direction [1].

Switching hysteresis ⎍:
5...100 % (factory setting = 10 % min. 1 Digit)

+ns (on) = Switch-on speed at shaft rotation in positive rotating direction [1].

-ns (on) = Switch-on speed at shaft rotation in negative rotating direction [1].

Baumer   www.baumer.com/motion

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Accessories

Connectors and cables

11191145	Adapter cable for programming the HMG10P/ PMG10P bus interfaces series D-SUB connector (male) 15-pin with connecting cable, D-SUB connector (male) 9-pin and 7-pin connecting terminal

Mounting accessories

K 35	Spring washer coupling for solid shaft ø6...12 mm
K 50	Spring washer coupling for solid shaft ø11...16 mm
K 60	Spring washer coupling for solid shaft ø11...22 mm

Programming accessories

11190106	Z-PA.SDL.1 - *WLAN-Adapter* Programming unit for xMG10P series

4/3/2019

Absolute encoders - bus interfaces

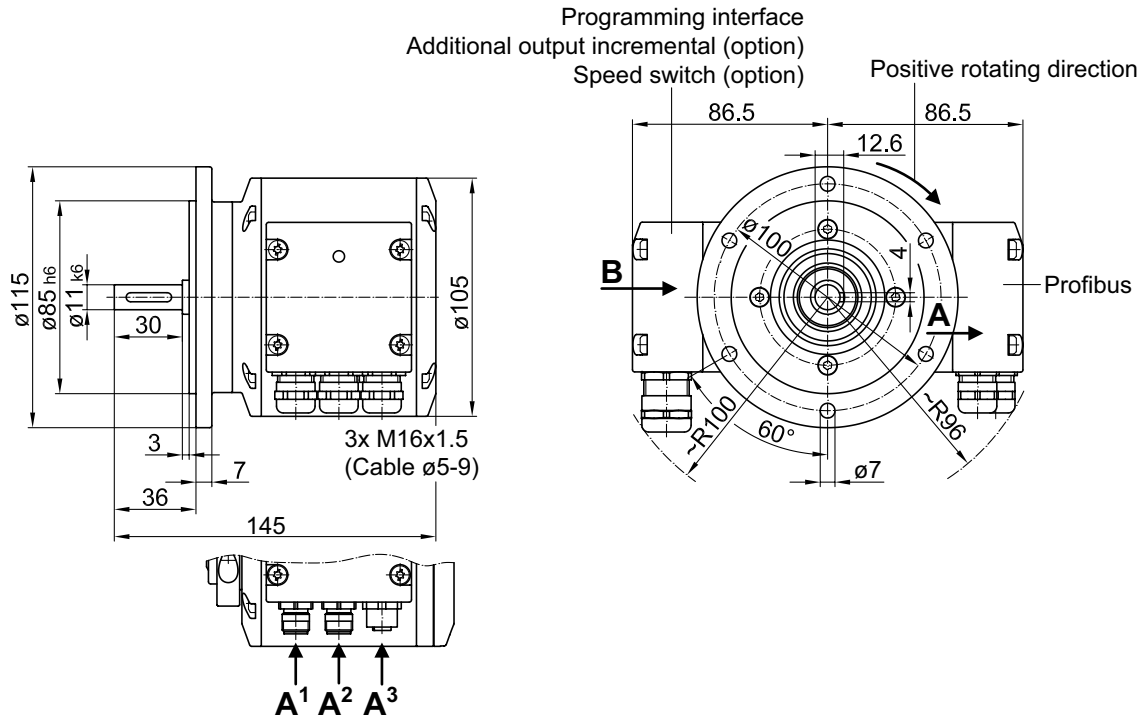**Solid shaft ø11 mm with EURO flange B10 or housing foot B3**
Profibus-DPV0 or DPV2 / 13 bit ST / 16 bit MT / Speed switch
Number of pulses and switching speed freely programmable

PMG10P - Profibus DP

Dimensions

Version with EURO flange B10

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

Positive rotating direction

ø115
ø85 h6
ø11 k6
30
ø105
3
7
36
145

86.5
86.5
12.6
4
ø100
B
A
Profibus
~R100
~R96
60°
ø7

3x M16x1.5
(Cable ø5-9)

A¹ A² A³

Version with housing foot B3

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

Positive rotating direction

145
ø50
ø11 k6
30
120.5

86.5
86.5
12.6
4
B
A
Profibus
68
12
ø7
100
110
128

3x M16x1.5
(Cable ø5-9)

57
90
157

A¹ A² A³