Absolute encoders - bus interfaces

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

PMG10 - CANopen®

PMG 10 - picture similar

Features	
–	**Interface CANopen®**
–	**Magnetic sensing method**
–	**Resolution: singleturn 13 bit, multiturn 16 bit**
–	**Function display via LEDs**
–	**Multiturn sensing with Energy Harvesting technologie, without gear or battery**
–	**Two hybrid bearings, one at each end**
–	**Special protection against corrosion C5-M**

Optional	
–	**Integrated speed switch, programmable**
–	**Additional output incremental with zero pulse**

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 switch in bus connecting box (type-specific)
Steps per turn	8192 / 13 bit
Number of turns	65536 / 16 bit
Additional outputs	Square-wave 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 in 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
Protection DIN EN 60529	IP 66/IP 67
Operating speed	≤6000 rpm
Range of switching speed	±2...6000 rpm, default 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
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
Corrosion protection	IEC 60068-2-52 Salt mist Complies to ISO 12944-5:1998 Protective paint systems (C5-M)
Weight approx.	2.7 kg (depending on version)
Connection	Bus connecting box Terminal box incremental

Technical data - electrical ratings (speed switches)

Interface	RS485
Switching accuracy	±2 % (or Digit)
Switching outputs	1 output (Open-Collector or Solid State Relay)
Output switching capacity	30 VDC; ≤100 mA
Switching delay time	≤20 ms

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Part number

| PMG10 | -S | H | | .1 | | C6 | .3 | | 00 | | .A |

Additional output *
0 Without
See also table "Additional output *"

Resolution multiturn
0 Without
6 16 bit

Voltage supply / interface
C6 10…30 VDC, CANopen® (DS 406)

Connection
5 1x bus connecting box with 3 cable glands M16, radial
1 1x bus connecting box with 2 connectors M12, radial
F 1x bus connecting box with 3 cable glands M16, radial +
1x terminal box with 1 cable gland M20, radial
Z 1x bus connecting box with 2 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

Speed switch / Programming
Without
D With speed switch *
(Standard: Open Collector, Solid State Relais on request)

* Only for connection F or Z

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Part number - tables

Additional output *

0	(Without)
Q	(8192 ppr TTL/HTL push-pull (Vin=Vout), 6 channels)
P	(8192 ppr TTL (RS422), 6 channels)
G	(5000 ppr TTL/HTL push-pull (Vin=Vout), 6 channels)
H	(5000 ppr TTL (RS422), 6 channels)
K	(4096 ppr TTL/HTL push-pull (Vin=Vout), 6 channels)
J	(4096 ppr TTL (RS422), 6 channels)
7	(3072 ppr TTL/HTL push-pull (Vin=Vout), 6 channels)
8	(3072 ppr TTL (RS422), 6 channels)
9	(2048 ppr TTL/HTL push-pull (Vin=Vout), 6 channels)
4	(2048 ppr TTL (RS422), 6 channels)
5	(1024 ppr TTL/HTL push-pull (Vin=Vout), 6 channels)
6	(1024 ppr TTL (RS422), 6 channels)
1	(512 ppr TTL/HTL push-pull (Vin=Vout), 6 channels)
2	(512 ppr TTL (RS422), 6 channels)

Accessories

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

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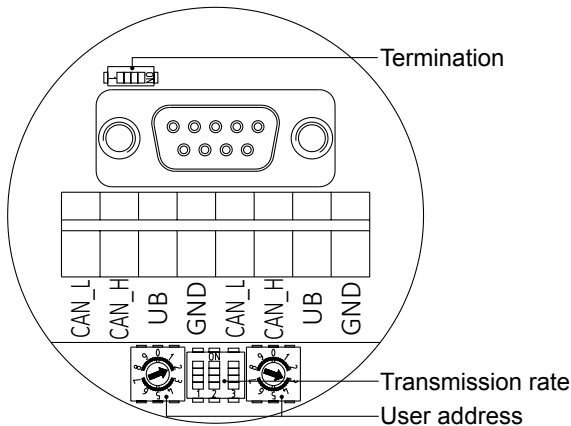
9/8/2016

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

PMG10 - CANopen®

CANopen® - Terminal assignment

View A[1) - View inside bus cover

CANopen® - Features

Bus protocol	CANopen®
CANopen®-Features	Device Class 2 CAN 2.0B
Device profile	CANopen® CiA DSP 406, V 3.0
Operating mode	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 error
Default settings	User address 00

CANopen® - Termination

ON = final user
OFF = user x

View C[1) / **View D**[1) - View into connector

male / female	Connection	Description
1	GND	Ground for UB
2	UB	Voltage supply 10...30 VDC
3	GND	Ground for UB
4	CAN_H	CAN Bus signal (dominant HIGH)
5	CAN_L	CAN Bus signal (dominant LOW)

Connector M12 (male, **C**[1))
5-pin, A-coded

Connector M12 (female, **D**[1))
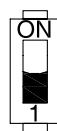5-pin, A-coded
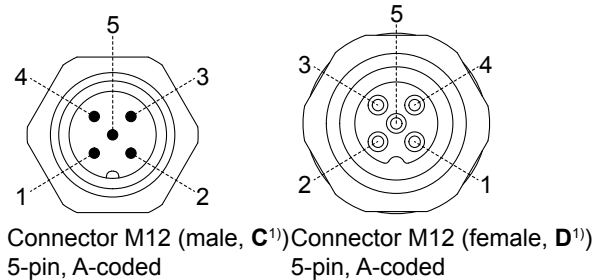
Terminals of the same significance are internally connected and identical in their functions. Max. load on the internal terminal connections UB-UB and GND-GND is 1 A each.
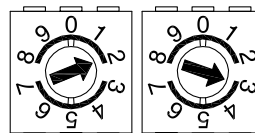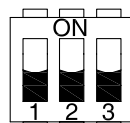
CANopen® - User address

Defined by rotary switch.
Example: User address 23

CANopen® - Transmission rate

Transmissi- on rate	Dip switch position		
	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

* Default

[1) See dimensions

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PMG10 - CANopen®

Speed switch/incremental - Terminal significance

|	
+UB	Voltage supply
⊥	Ground
A+	Channel A+
A−	Channel A− (channel A+ inverted)
B+	Channel B+
B−	Channel B− (channel B+ inverted)
R+	Zero pulse (reference signal)
R−	Zero pulse inverted
nE+	System OK+ / error output
nE−	System OK− / error output inverted
SP+[2]	DSL_OUT1 / speed switch (Open-Collector or Solid State Relay)
SP−[2]	DSL_OUT2 / speed switch (0 V or Solid State Relay)
SA[2]	RS485+ / programming interface
SB[2]	RS485− / programming interface

Speed switch/incremental - Terminal assignment terminal box
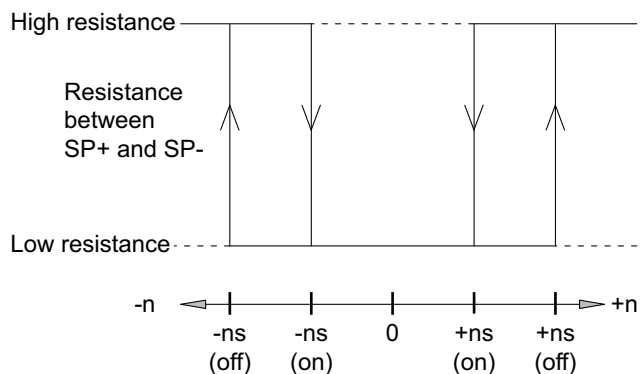
View B[1]
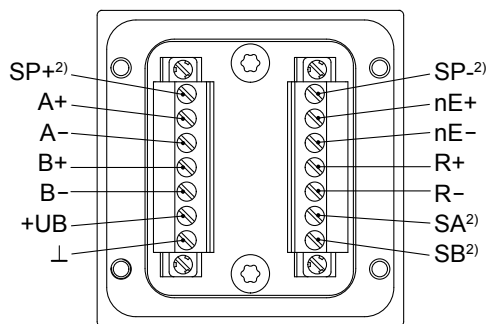
Incremental - Output signals

Version with additional incremental output at positive rotating direction
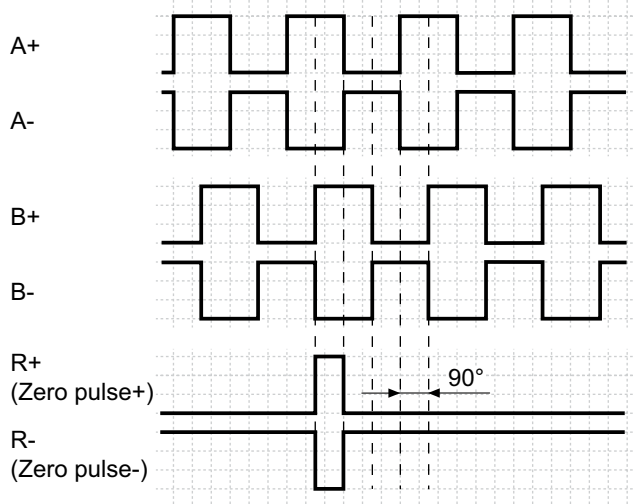
Speed switch - Switching characteristics

n	=	Speed
+ns (on)	=	Activation speed at shaft rotation in positive rotating direction[1].
+ns (off)	=	Deactivation speed at shaft rotation in positive rotating direction[1].
-ns (on)	=	Activation speed at shaft rotation in negative rotating direction[1].
-ns (off)	=	Deactivation at shaft rotation in negative rotating direction[1].

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[1] See dimensions

[2] Do not use at version without speed switch

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Dimensions

Speed switch (option)
Additional output incremental (option)

Positive rotating direction

86.5

86.5

12.6

B

ø100

4

A

CANopen®

~R100

60°

~R96

7

ø115 h6
ø85 h6
ø11 k6

30

ø105

3

7

36

3x M16x1.5
(Cable ø5-9)

145

C **D**

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