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PHM9

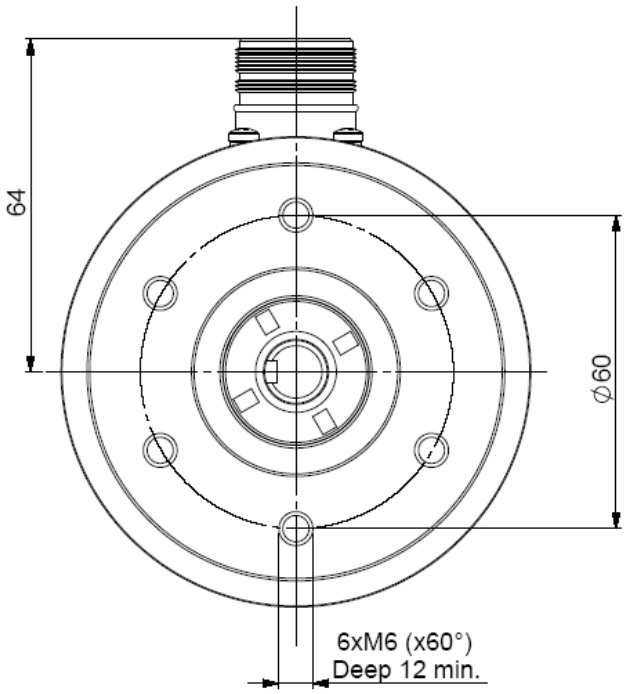
CANopen ABSOLUTE MULTI-TURN ENCODERS, PHM9 RANGE

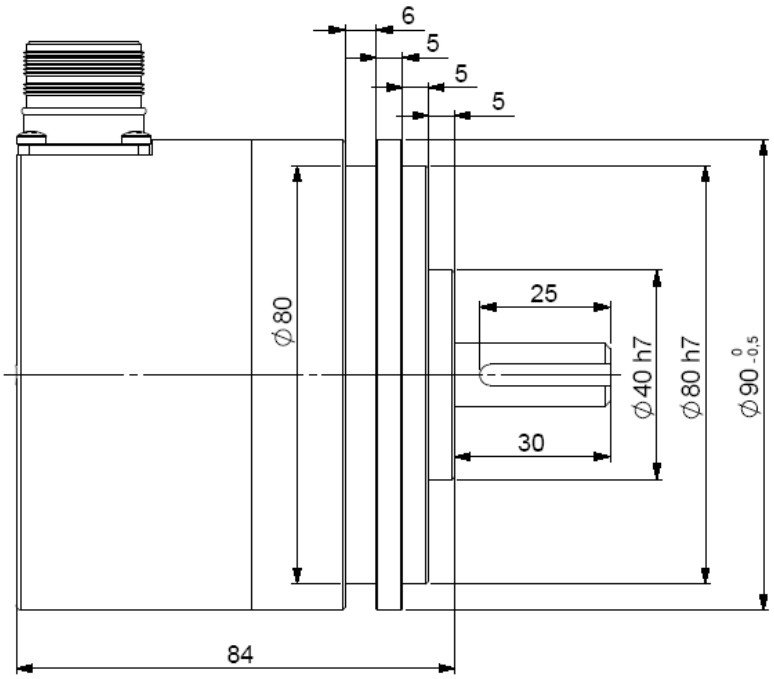
PHM9, 90mm encoder, the new generation of CANopen multi-turn encoder:

- Heavy Duty version, 11 & 12 mm solid shaft.
- Robustness and excellent resistance to shocks / vibrations.
- High protection level IP65.
- High performances in temperature –20°C to +85°C.
- Universal electronic circuits from 5 to 30Vdc.
- High resolutions available: 8192 (13 bits) per turn.
- Turn counting up to 65 536 (16 bits).
- Available with incremental channels – 2048 points – 5 to 30 Vdc.
- Also available with SSI, Profibus and RS232 interface.

CANopen
DS 301 V4.02
DS 406 V3.1

PHM9_12 connection BCR (M23 radial)





MECHANICAL CHARACTERISTICS

Material	Cover : steel
	Body: aluminium
Shaft	Stainless steel
Bearings	6001 serie
Maximal loads	Axial : 100 N
	Radial : 200 N
Shaft inertia	≤ 15.10^{-6} kg.m²
Torque	≤ 10.10^{-3} N.m
Permissible max. speed	6 000 min^{-1}
Continuous max. speed	6 000 min^{-1}
Shaft seal	Viton double lips

Shocks (EN60068.2.27)	≤ 500m.s^{-2} (during 6 ms)
Vibrations (EN60068.2.6)	≤ 100m.s^{-2} (10 ... 2 000 Hz)
EMC	EN 61000-6-4, EN 61000-6-2
Isolation	100V (1 min.)
Encoder weight (approx.)	1,600 kg
Operating temperature	- 20 ... + 85 °C (encoder T°)
Storage temperature	- 20 ... + 85 °C
Protection(EN 60529)	IP 65

Theoretical mechanical lifetime 10^9 turns (F_{axial} / F_{radial})

20 N / 30 N	50 N / 100 N	100 N / 200 N
360	18	2,2

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ELECTRICAL CHARACTERISTICS

Power supply	5 – 30Vdc
Introduction	< 1 s
Consumption (without load)	< 50mA (at 24Vdc)
Accuracy	± ½ LSB (13 bits)

Programmable parameters

Resolution: defines the resolution per revolution (0 to 8 192),
Global resolution : total amount of codes for the encoder (2 to 536 870 912),
Transmission speed : programmable from 10kBaud (1000m) to 1 Mbaud (40 m) ; value per default: 20 Kbaud,
Address: define the software address of the encoder on the bus (1 to 127, value by default: id = 1),
Direction : define the direction of count of the encoder ,
RAX : defines the value of its preset position (non turning shaft),
CAM: Low and High Limits.

Communication modes

3 modes are available to interrogate the encoder :
POLLING mode: (Response to a RTR message): The position value is only given upon request (SDO mode),
CYCLIC mode: the encoder transmits its position in an asynchronous manner. The frequency of the transmission is defined by the programmable cyclical timer register from 0 to 65 535 ms,
SYNCHRO mode: the encoder transmits its position on a synchronous demand by the master.

CANOPEN CONNECTION

1	2	3	4	5	6	7	8, 9, 11	10	12
Reserved	CAN LOW	CAN GND	Reserved	Reserved	Reserved	CAN HIGH	Reserved	0V	+ 5/30Vdc

Pinout 3 (CAN GND) and 10 (0V) are connected together (intern the encoder).

Nota : Refer to the bus standards for the maximal derivation length.

ORDERING CODE (Special versions upon request, for ex. special flanges/electronics/connections…)

	Shaft Ø	Power supply	Output stages	Code	Resolution	Nb of turns	Connection	Connection orientation
PHM9	**12** 12mm	**P** : 5 to 30Vdc	**BB** : CANopen	**B**: Binary	**13** : 8192 points per turn (2^{13})	**B16** : 65 536 turns (2^{16})	**BC:** M23 12 pinouts clockwise	**R** : radial
PHM9 _	**12 //**	**P**	**BB**	**B //**	**13**	**B16 //**	**BC**	**R**

Made in France

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