

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 IP66.
- 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.

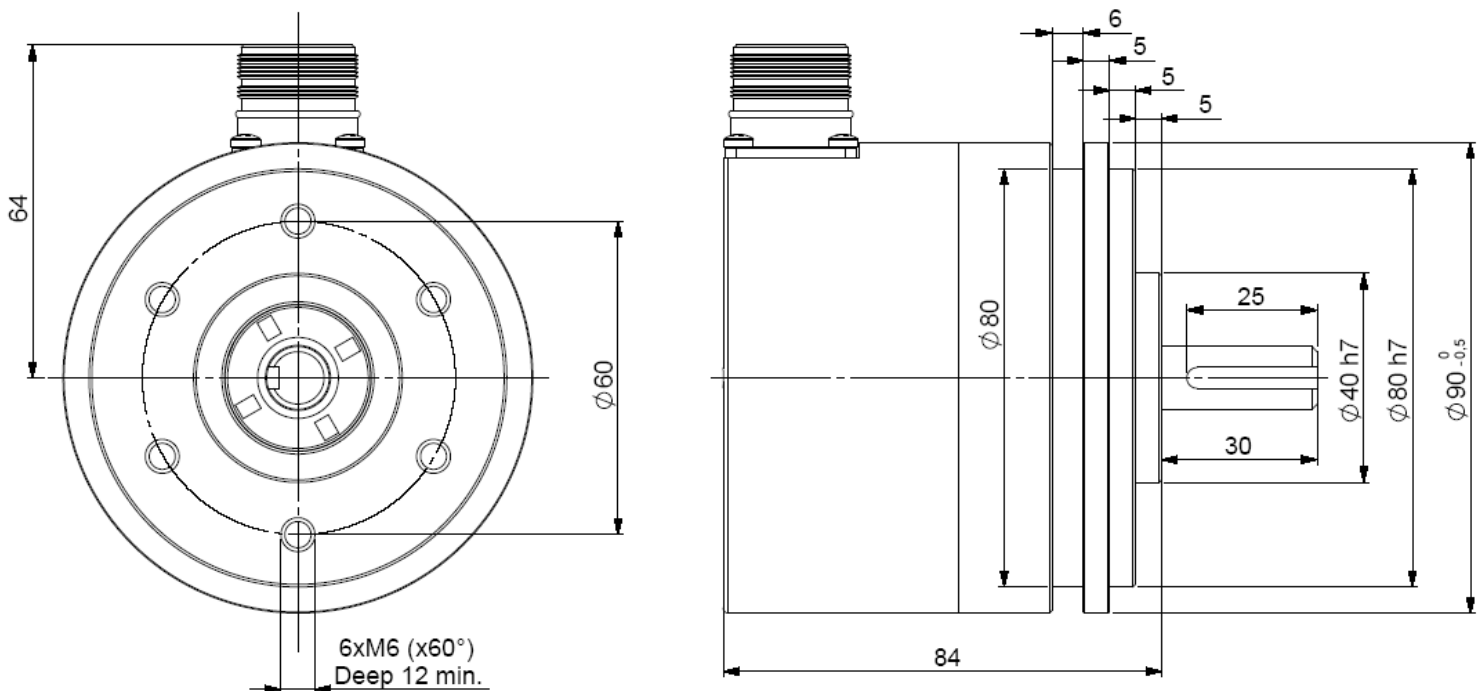
CANopen

DS 301 V4.02

DS 406 V3.1



PHM9_12 connection BCR (M23 radial)



MECHANICAL CHARACTERISTICS

| | | | | |
|------------------------|---|---|--|---------------|
| Material | Cover : steel | Shocks (EN60068.2.27) | ≤ 500m.s ⁻² (during 6 ms) | |
| | Body: aluminium | Vibrations (EN60068.2.6) | ≤ 100m.s ⁻² (10 ... 2 000 Hz) | |
| Shaft | Stainless steel | EMC | EN 61000-6-4, EN 61000-6-2 | |
| Bearings | 6001 serie | Isolation | 100V (1 min.) | |
| Maximal loads | Axial : 100 N | Encoder weight (approx.) | 1,600 kg | |
| | Radial : 200 N | Operating temperature | - 20 ... + 85 °C (encoder T°) | |
| Shaft inertia | ≤ 15.10 ⁻⁶ kg.m ² | Storage temperature | - 20 ... + 85 °C | |
| Torque | ≤ 10.10 ⁻³ N.m | Protection(EN 60529) | IP 66 | |
| Permissible max. speed | 6 000 min ⁻¹ | Theoretical mechanical lifetime 10 ⁹ turns (F _{axial} / F _{radial}) | | |
| Continuous max. speed | 6 000 min ⁻¹ | | | |
| Shaft seal | Viton double lips | 20 N / 30 N | 50 N / 100 N | 100 N / 200 N |
| | | 360 | 18 | 2,2 |



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 10kBaude (1000m) to 1 Mbaude (40 m) ; value per default: 20 Kbaude,

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 |