

CANopen ABSOLUTE MULTI-TURN ENCODERS, PHO5 RANGE

PHO5, the new generation of CANopen absolute multi-turn encoders :

- 58mm encoder, extra-flat,
- Ø14mm through shaft version, reduction hubs available,
- Robustness and excellent resistance to shocks / vibrations,
- High protection level IP65,
- High performances in temperature -20°C to 85° (-30°C option),
- Universal power supply from 5 to 30 Vdc,
- High resolutions up to 8192 points per turn (2¹³),
- Turns numerisation up to 65 536 (16 bits).

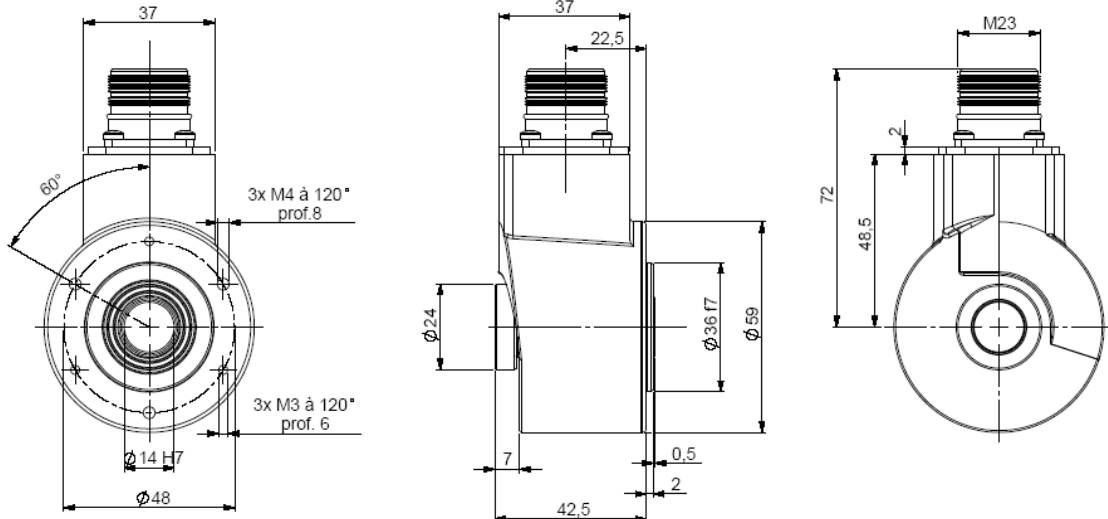
CANopen

DS 301 V4.02

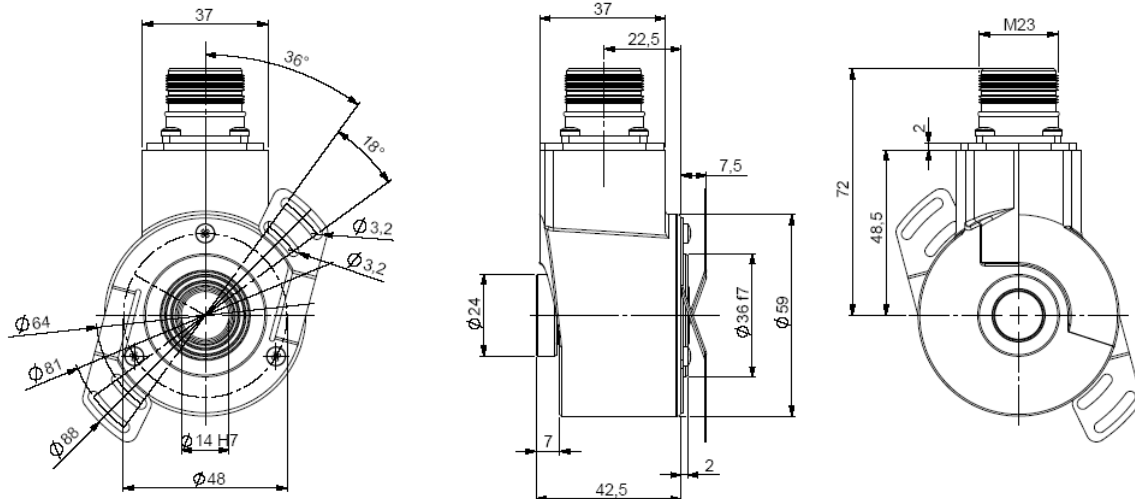
DS 406 V3.1



PHO5_14 connection BCR (M23 radial)



PHO5_14 connection BCR (M23 radial), DAC 9445/015* mounted on the body



* accessory to be ordered separately

| | | | |
|------------------------|--|---|--|
| Material | Cover : steel | Shock (EN60068-2-27) | ≤ 500m.s ⁻² (during 6 ms) |
| | Body : aluminium | Vibration (EN60068-2-6) | ≤ 100m.s ⁻² (10 ... 2 000 Hz) |
| | Shaft : stainless steel | EMC | EN 61000-6-4, EN 61000-6-2 |
| Bearings | 6 803 serie | Isolation | 500V (1 min) |
| Maximal load | Axial : 20 N | Weight | 0,480 kg |
| | Radial : 50 N | Operating temperature | - 20 ... + 85 °C (encoder T°) |
| Shaft inertia | ≤ 2,2.10 ⁻⁶ kg.m ² | Storage temperature | - 20 ... + 85 °C |
| Torque | ≤ 6.10 ⁻³ N.m | Protection(EN 60529) | IP 65 |
| Permissible max. speed | 6 000 min ⁻¹ | Torque (ring pressure screw) | nominal: 1.5N.m, break: 2.0N.m |
| Continuous max. speed | 6 000 min ⁻¹ | Theoretical mechanical lifetime 10 ⁹ turns (F _{axial} / F _{radial}) | |
| Shaft seal | Viton | 10 N / 25 N : 185 | 20 N / 50 N : 24 |

CANopen ABSOLUTE MULTI-TURN ENCODERS, PHO5 RANGE

CANopen

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 |
|--------|--|-----------------------|---------------------|------------------|---|--|--|------------------------|
| PHO5 | 14 : 14mm Reduction hubs available | 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 |
| PHO5 _ | 14 // | P | BB | B // | 13 | B16 // | BC | R |

Made in France