PHU9

CANOPEN ABSOLUTE MULTI-TURN ENCODERS

PHU9, the new generation of CANopen absolute multi-turn encoders

- 90mm encoder, extra-flat
- Ø30mm through shaft version, reduction hubs available
- Robustness and excellent resistance to shocks / vibrations
- High protection level IP65
- High performances in temperature –20°C to 80°C
- Universal power supply from 5 to 30 Vdc
- High resolutions up to 8192 points per turn (2^{13})
- Turns numerisation up to 65 536 (16 bits)

SPECIFICATIONS

Mechanical

Material	Cover : steel
	Body: aluminum
	Shaft : stainless steel
Bearings	6 807 serial
Maximum loads	Axial : 50 N
	Radial : 80 N
Shaft inertia	≤ 55.10^{-6} kg.m^2
Torque	≤ 25.10^{3} N.m
Permissible max. speed	6 000 min^{-1}
Continuous max. speed	3 600 min^{-1}
Shaft Seal	Viton
Shock (EN60068-2-27)	≤ 500 m.s^{-2} (during 6 ms)
Vibration (EN60068-2-6)	≤ 100 m.s^{-2} (10… 2 000 Hz)
EMC	EN 61000-6-4, EN 61000-6-2
Isolation	100V (1 min.)
Weight (connector)	0,700 kg
Operating temperature	- 20 ... + 80 °C (encoder T°)
Storage temperature	- 20 ... + 80 °C
Protection(EN 60529)	IP 65
Torque (ring pressure screw)	4.5 N.m
Theoretical mechanical lifetime 10^9 turns (Faxial / Fradial)	25 N / 40 N : 140
	50 N / 80 N : 17

Electrical

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

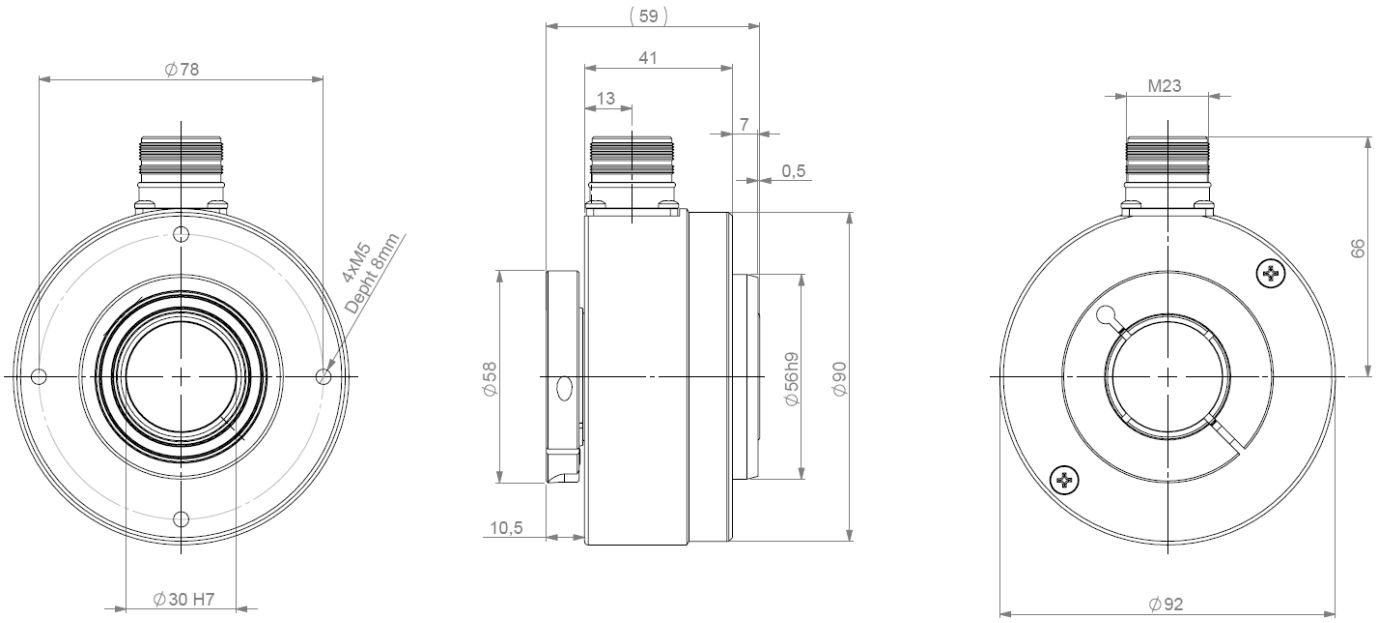
1	2	3	4	5	6	7	8,9,11	10	12
Reserved	CAN LOW	CAN GND	Reserved	Reserved	Reserved	CAN HIGH	Reserved	0V	+ 5/30Vdc

Pinout 3 (CAN GND) and 10 (0V) are connected together (intern the encoder)
Note : Refer to the bus standards for the maximal derivation length

DIMENSIONS

All dimensions are in: mm

PHU9 connection BCR (radial M23)



ORDERING OPTIONS

Example : PHU9 _30 //PBBB //13B16 //BCR

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

PHU9 _ 30 // P BB B // 13 B16 // BC R

Type

PHU9

Shaft Ø

30 : 30mm
Reduction hubs available

Power supply

P : 5 to 30Vdc

Output stages

BB : CANopen

Code

B : Binary

Resolution

13 : 8192 points per turn (2^{13})

Nb of turns

B16 : 65 536 turns (2^{16})

Connection

BC : M23 12 pinouts clockwise

Connection orientation

R : radial

AGENCY APPROVALS & CERTIFICATIONS

CE

CANopen
DS 301 V4.02
DS 406 V3.1

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