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PHO5

CE

ABSOLUTE MULTI-TURN ENCODER, PROFIBUS INTERFACE, PHO5 SERIE (3 x M12)

PHO5, new generation of Profibus absolute multi-turn encoders :

- Extra-flat encoder, through shaft Ø 14 mm, reduction hubs available: 6, 8, 10, 12mm,
- Also available in blind shaft version,
- Robustness and excellent resistance to shocks / vibrations,
- 3 ball bearings – 2 in body – 1 on cover,
- Double or triple mounting possibility (incremental or other interfaces),
- High protection level IP65,
- High performances in temperature –20°C to +85°C,
- 5 to 30 Vdc power supply,
- Standard resolution : 8192 points per revolution (13 bits resolution),
- High resolution available in option: 65 536 points par revolution (16 bits resolution),
- Turns numerisation up to 65 536 (16 bits),
- Connection via M12 connectors,
- DPV0, Class 2, encoder profile 3.062,
- PHO5 also available with SSI, programmable SSI, CANopen and RS232 interface.

DIMENSION : PHO5 Profibus - connection 3xM12 – with DACs 9445/015* mounted on bearings housing
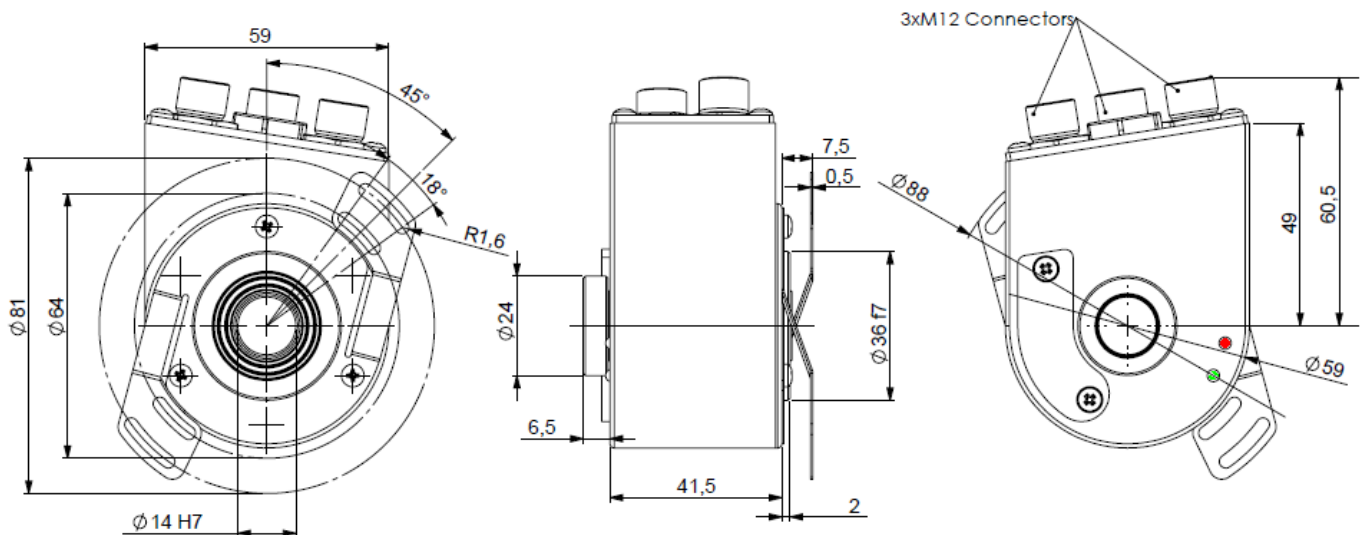
* Accessory to be ordered separately (standard DAC system : M9445/015)

MECHANICAL CHARACTERISTICS

Material	Cover : treated steel	Shock (EN60068-2-27)	$\leq 500 \text{m.s}^{-2}$ (during 6 ms)
	Body: aluminium	Vibration (EN60068-2-6)	$\leq 100 \text{m.s}^{-2}$ (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 approx.	0,700 kg
	Radial : 50 N	Operating temperature	- 20 ... + 85 °C (Encoder T°)
Shaft inertia	$\leq 2,2.10^{-6} \text{ kg.m}^2$	Storage temperature	- 20 ... + 85 °C
Torque	$\leq 6.10^{-3}$ 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 : 230	20 N / 50 N : 29

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GENERALITY

Transmission frequency: from 9.6Kbaud to 12Mbaud.

Electronic interface: opto-isolated RS485.

Adress: permits the addressing of each encoder in an installation (32 master stations or slaves stations per segment without repetitor, 127 maximum with repetitor).

ON   ON

Adress: 0 to 126 (Binary code)
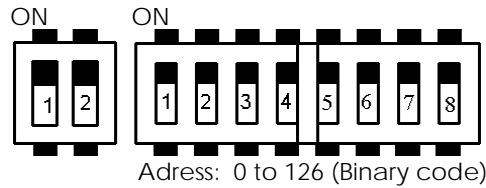
End line resistance termination: 1, 2 ''ON'' (Beginning or end line)

Switch - on ''ON''	1	2	3	4	5	6	7
=	1	2	4	8	16	32	64

Switch 8 on ''OFF''.
Example: Adress 5: Switch 1 & 3 on ''ON'', others on ''OFF''.

PROGRAMMABLE PARAMETERS

Direction : Permits the definition of the counting direction of the encoder (CW or CCW) following its mechanical position.
Resolution : the number or points per turn can be between 0 and 8192, option: 0 to 65536.
Global resolution (MAX RANGE) : Total number of codes of the encoder (2 to 536 870 912, option 2 to 2 147 483 648).
Reset : defines the value of its actual position.
Time base : defines the base time for the speed calculation (10 ms , 100 ms, 1 s, speed in rpm).

CONNECTION

BUS IN (M12 - 5 male pinouts B code)

Signal	NC	BUS A	NC	BUS B	NC
Pinout	1	2	3	4	5

NC : do not connect

BUS IN

BUS OUT (M12 – 5 female pinouts B code)

Signal	P5V	BUS A	BUS GND	BUS B	NC
Pinout	1	2	3	4	5

P5V & BUS GND for the connection of the end-line termination resistance.

BUS OUT

POWER SUPPLY (M12 - 4 male pinouts A code)

Signal	+Vcc	NC	0Vdc	NC
Pinout	1	2	3	4

Power supply : 5-30V consumption <200 mA (160mA typ)
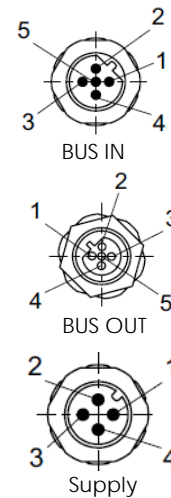
Supply

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

	Shaft Ø	Supply	Interface	Code	Resolution	Turns Nb	Connection	Connection orientation
PHO5	**14**: 14mm Reduction hub available	**P** : 5 to 30Vdc	**BG** : Profibus	**B**: Binary	**13** : 8192 points per turn (2^{13}) Option **16** : 65 536 points per turn (2^{13})	**B16** : 65 536 turns (2^{16}) **B15** : 32768 turns (2^{15})	**BH**: 3 connectors M12	**R** : radial
Ex: PHO5_	14 //	P	BG	B //	13	B16 //	BH	R

Made in FRANCE

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