

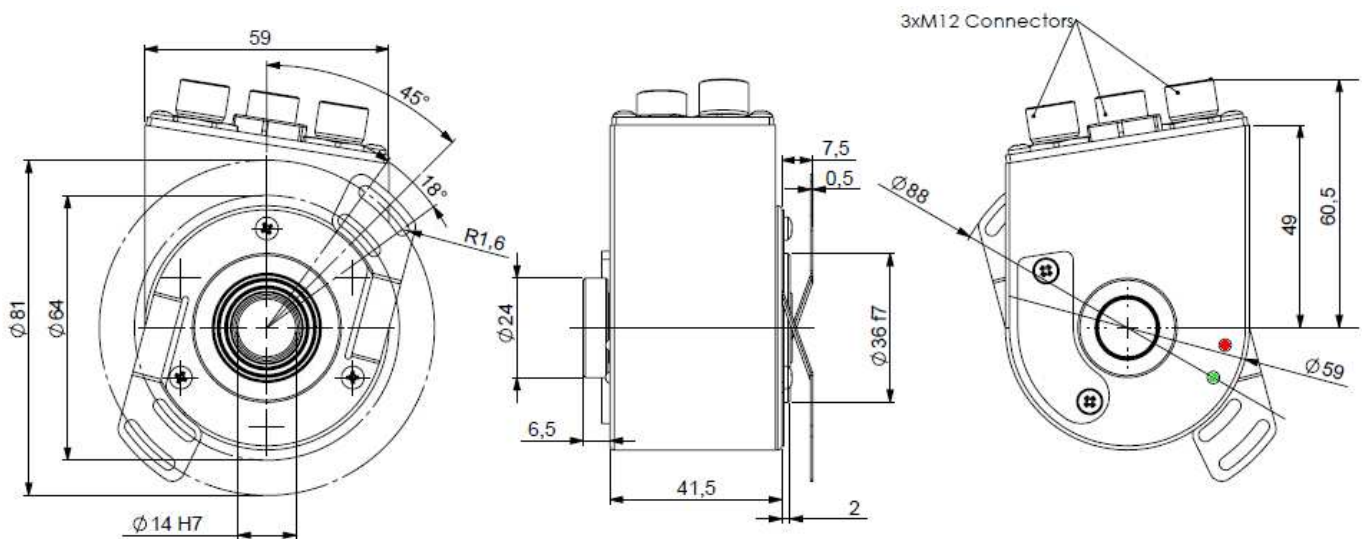
# ABSOLUTE MULTI-TURN ENCODER, PROFIBUS INTERFACE, PHO5 SERIE (3 x M12)

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

- Extra-flat encoder, through shaft  $\varnothing$  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  $-20^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$ ,
- 5 to 30 Vdc power supply,
- Standard resolution : 8192 points per revolution (13 bits resolution),
- High resolution available in option: 65 536 points per 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	$-20 \dots +85^{\circ}\text{C}$ (Encoder T <sup>o</sup> )
Shaft inertia	$\leq 2,2 \cdot 10^{-6} \text{kg.m}^2$	Storage temperature	$-20 \dots +85^{\circ}\text{C}$
Torque	$\leq 6 \cdot 10^{-3} \text{N.m}$	Protection(EN 60529)	IP 65
Permissible max. speed	6 000 min <sup>-1</sup>	Torque (ring pressure screw)	nominal: 1.5N.m, break: 2.0N.m
Continuous max. speed	6 000 min <sup>-1</sup>	Theoretical mechanical lifetime 10 <sup>9</sup> turns (F <sub>axial</sub> / F <sub>radial</sub> )	
Shaft seal	Viton	10 N / 25 N : 230	20 N / 50 N : 29



Tel : +33 (0)3 88 02 09 02 / Fax : +33 (0)3 88 02 09 03 / E-mail : info@ak-industries.com / Web : http://www.ak-industries.com

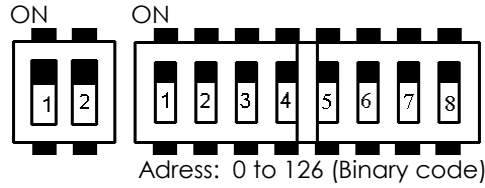
# ABSOLUTE MULTI-TURN ENCODER, PROFIBUS INTERFACE, PHO5 SERIE (3 x M12)

## GENERALITY

**Transmission frequency:** from 9.6Kbaud to 12Mbaud.

**Electronic interface:** opto-isolated RS485.

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



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 of 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 OUT (M12 - 5 female pinouts B code)

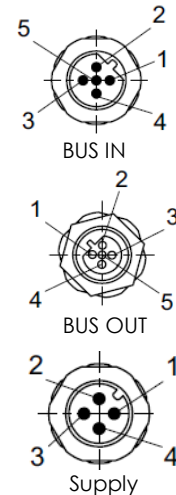
Signal	P5V	BUS A	BUS GND	BUS B	NC
Pinout	1	2	3	4	5

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

### 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)



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

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