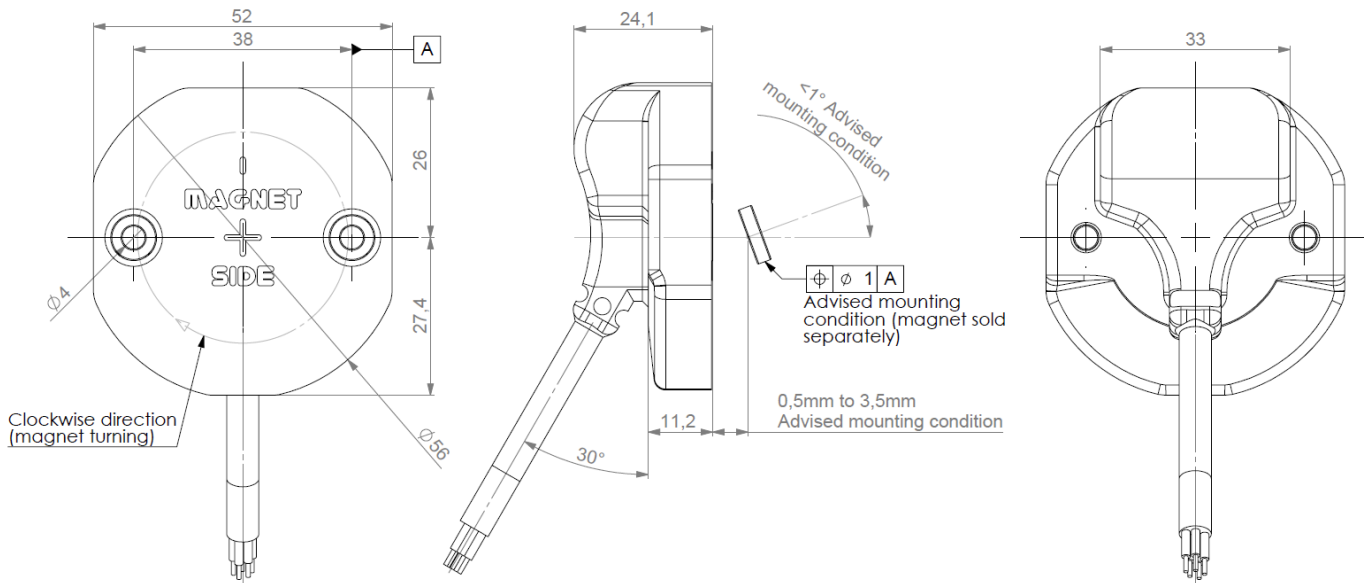


PRELIMINARY - MAGNETIC PWM ABSOLUTE MULTI TURN MODULAR SENSORS, TCW4 RANGE

- With its modular design, the TCW4 PWM absolute multi-turn sensor offers maximum flexibility when installing it.
- Application fields : agriculture, construction, forestry vehicles, medical, solar panels...
- Robustness and excellent resistance to shocks / vibrations.
- Standard IP 67 protection (IP69K option).
- Operating temperature range: -20°C to 85°C.
- Magnetic technology.
- Universal supply 5 to 30Vdc – SSI output interface.
- Available resolution up to 12 bits per revolution.
- Turn counting up to 16 bits.
- Also available : analog, SSI and CANopen outputs.
- Standard PUR cable output.

STANDARD TCW4 DIMENSION



Advised mechanical working conditions (for optimal performances) :

- recommended air gap: 0,5mm to 3mm (between magnet's and sensor's faces),
- recommended parallelism : +/-1° (between magnet and sensor),
- Misalignment tolerance : +/-0,5mm (between magnet's and sensor's centers).

Shaft system with magnet to be ordered separately (cf specific data-sheet M9105).

MECHANICAL DATA

Material	Macromelt OM638	Protection	IP 67
Encoder weight (approx.)	0,150 kg	Shocks (EN60068-2-27)	$\leq 2000\text{m.s}^{-2}$ (during 6 ms)
Operating temperature	- 20... + 85 °C (encoder T°)	Vibrations (EN60068-2-6)	$\leq 200\text{m.s}^{-2}$ (55 ... 2 000 Hz)
Storage temperature	- 20... + 85 °C		

ADAPTATION POSSIBILITY

BEI Sensors distinguishes itself by its flexible approach and ability to react to customers needs, with us no limit exists; we shall always try to supply you the product offering the best solution to your specifications.

Modified mechanics: Precision prototypes units, small and medium size. Units that will match themselves exactly to your mechanical configuration or to your dimensional constraints.

Specific shaft system: for example with integrated coupling.

Send us your subset: we can integrate our encoder into your subset and return you the complete assembly with the guarantee of an optimal mounting.

Connection / Cable assemblies: On the whole range of our sensors a wide selection of electrical connections are possible.

PRELIMINARY - MAGNETIC PWM ABSOLUTE MULTI TURN MODULAR SENSORS, TCW4 RANGE

ELECTRICAL DATA

Power supply	5-30Vdc	Accuracy	± 0.3 %
Consumption without load	< 40mA (at 24Vdc)	Repeatability	± 0.1 %
Resolution in the turn	12 bits	Introduction	< 1s
Number of turns	16 bits max.	Refresh rate	< 400µs
Total resolution	16 bits	Advised load	>10kOhms (Voltage output)
Sampling rate*	1 kHz		500Ohms (current output)

PWM

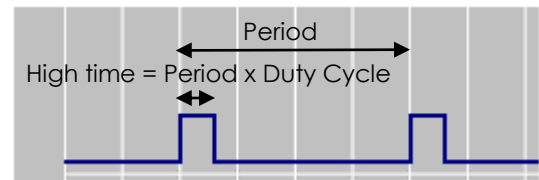
Our PWM mode is defined with the following characteristics :

Supply : 5 to 30Vdc

PWM frequency : 1kHz

Duty cycle : 10 to 90% (special duty cycle range on demand, for example 5% to 95%, consult us)

Output voltage : Minimum high level = Vcc-2,5Vdc.



PWM output is submitted neither to the delay error Er nor to the angular range extremities distortion previously presented.

As encoders with numeric communication do, PWM absolute encoders fit in various applications where speed is significant as well as where there are a lot of electric interferences : unstable subsequent circuitry supply, distance between sensor and subsequent circuitry... Because encoder's data are not contained in a voltage level but in a time, data are prevented from interferences.

CONNECTION

	+Vcc	0V	PWM output	Ground
L7	Brown BN	White WH	Green GN	General shielding

ORDERING REFERENCE (Contact the factory for special versions, ex : stainless steel version, connections...)

	Mechanics	Supply Output stage	Direction	Resolution	Connection	Connection orientation
TCW4 : Absolute single turn encoder	00 : Modular	2LP : 5V power supply 5LP : 11-30V power supply PWM 1kHz cycle =10..90%	1 : CW Clockwise 2 : CCW Counter-clockwise	xxxxx : Angle in degree Ex : 03600 3600°	L7 : cable output	R020 : Radial Cable 2m
Ex: TCW4 _	00 //	5 LP	1 //	03600 //	L3	R020

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