

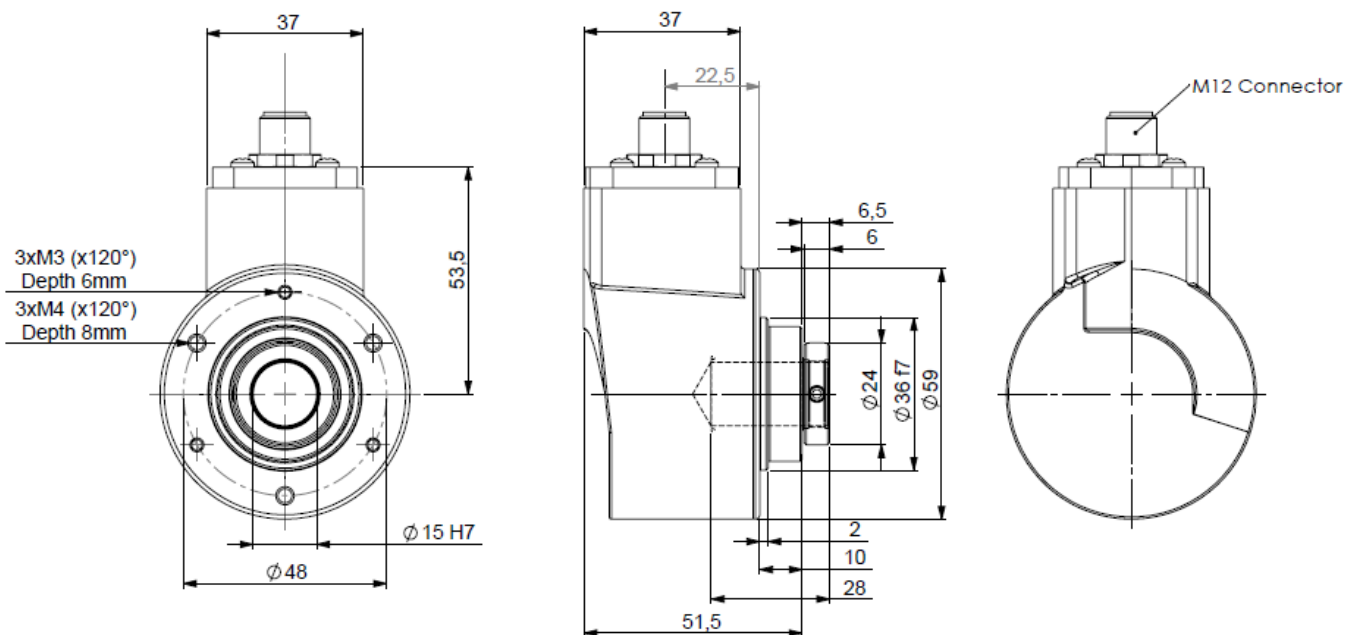
PRELIMINARY - CANopen ABSOLUTE MULTI-TURN ENCODERS, THK5 RANGE

THK5, the new generation of CANopen absolute multi-turn encoders :

- Magnetic technology,
- 58mm encoder, extra-flat,
- Ø 14 blind shaft version – reduction hub available – 15mm blind shaft option,
- 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 4 096 points per turn (2¹²),
- Turns numerisation up to 65 536 (16 bits).

CANopen
DS 301 V4.02
DS 406 V3.1

THK5_15 connection B7R (radial M12)



MECHANICAL DATA

Material	Cover : steel	Vibration (EN60068-2-6)	≤ 200m.s ⁻² (10 ... 2 000 Hz)
	Body: aluminium	EMC	EN 61000-6-4, EN 61000-6-2
	Shaft : stainless steel	Isolation	100V (1 min)
Bearings	6 803 serie	Weight	0,500 kg
Maximum load	Axial : 20 N	Operating temperature	- 20 ... + 85 °C (encoder T°)
	Radial : 50 N	Storage temperature	- 20 ... + 85 °C
Shaft inertia	≤ 2,2.10 ⁻⁶ kg.m ²	Protection(EN 60529)	IP 65
Torque	≤ 6.10 ⁻³ N.m	Torque (ring pressure screw)	nominal: 1.5N.m, break: 2.0N.m
Permissible max. speed	6 000 min ⁻¹	Theoretical mechanical lifetime 10 ⁹ turns (F _{axial} / F _{radial})	
Continuous max. speed	6 000 min ⁻¹	10 N / 25 N	185
Shock (EN60068-2-27)	≤ 2000m.s ⁻² (during 6 ms)	20 N / 50N	24

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ELECTRICAL DATA

Power supply	5-30Vdc	Sampling rate*	1 kHz
Consumption without load	< 40mA (at 24Vdc)	Accuracy	± 0.3 %
Resolution in the turn	12 bits	Repeatability	± 0.1 %
Number of turns	16 bits max.	Introduction	< 1s
Total resolution	Up to 28 bits	Refresh rate	< 400µs

* Nota : Internal data refresh rate

PROGRAMMABLE PARAMETERS

Resolution: defines the resolution per revolution (0 à 4 096).

Transmission speed: programmable from 10kbaud (1 000m) to 1 Mbaud (25 m) ; value per default : 20 Kbaud.

Address: defines the software address of the encoder on the bus (1 à 127, Value per default : id = 1).

Direction: defines the direction of count of the encoder.

RAX: define the value of the current position (stationary shaft).

Comes: high and low limits.

COMMUNICATION MODES

Encoder configuration : Reading/Writing of the encoder objects dictionary (SDO mode).

3 modes are available to interrogate the encoder position/speed :

CYCLIC mode: the encoder transmits its position in an asynchronous manner. The frequency of the transmission is defined by the programmable cyclic timer register from 0 to 65 535 ms,

SYNCHRO mode: the encoder transmits its position on a synchronous demand by the master.

POOLING mode (Answer to a RTR signal) : the encoder only answers to a request.

CANOPEN CONNECTION – B7 – M12

Type	Description	0V	+ Vcc	CAN GND / 0V	CAN HIGH	CAN LOW	Ground
B7	M12 5 pinouts	1	2	3	4	5	Connector body

Nota :

- Refer to the bus standards for the maximal derivation length.
- 0V and CAN GND are connected together.

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
THK5	14 : 14mm Reduction hub available 15mm option	P : 5 to 30Vdc	BB : CANopen	B: Binary	12 : 4096 points per turn (2 ¹²)	B16 : 65 536 turns (2 ¹⁶)	B7: M12	R : radial
THK5 _	14 //	P	BB	B //	12	B16 //	B7	R

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