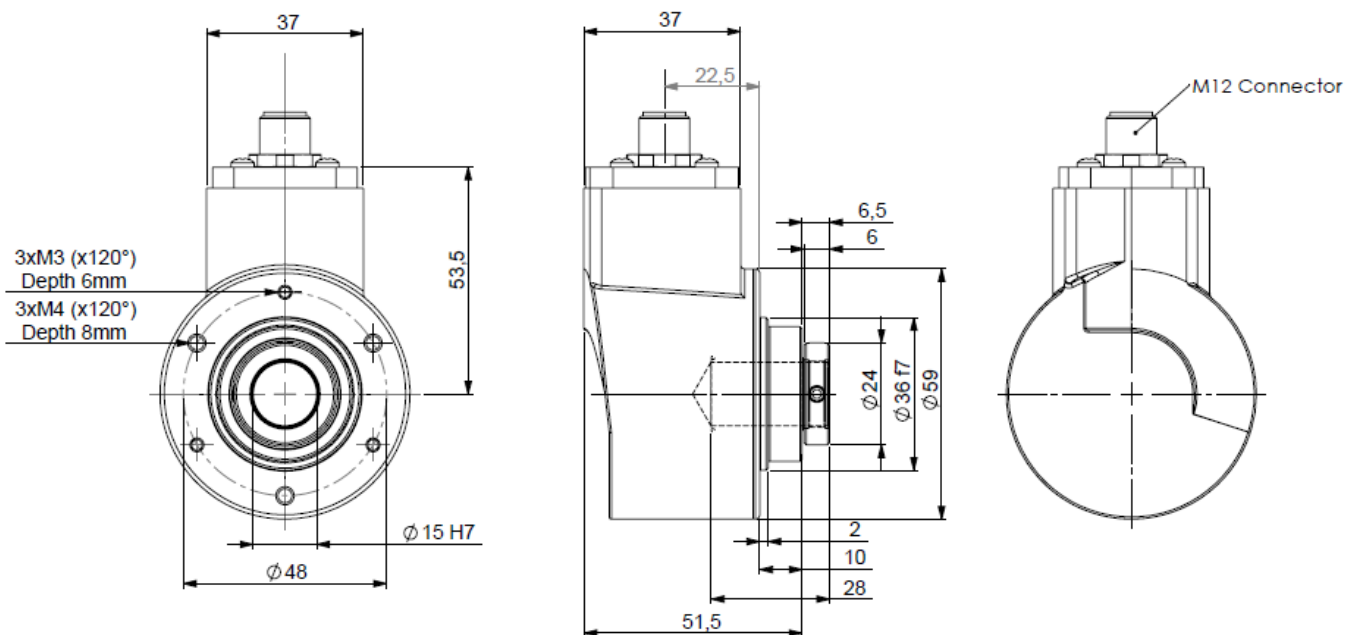# *THK5*

CE

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 (2^{12}),
- 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

BEISENSORS

THK5

CE

CANopen ABSOLUTE MULTI-TURN ENCODERS, THK5 RANGE

ELECTRICAL DATA

Power supply	5-30Vdc	Sampling rate*	1 kHz
Comsumption 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 (stationnary shaft).

Cames : high and low limits.

COMMUNICATION MODES

Encoder configuration : Reading/Writing of the encoder objects dictionnary (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

Made in France

CONTACT US

Regional head offices:

United States of America
Sensata Technologies
Attleboro, MA
Phone: 508-236-3800
E-mail: support@sensata.com

Netherlands
Sensata Technologies Holland B.V.
Hengelo
Phone: +31 74 357 8000
E-mail: support@sensata.com

China
Sensata Technologies China Co., Ltd.
Shanghai
Phone: +8621 2306 1500
E-mail: support@sensata.com