RTP100

ANGLE ROTARY SENSOR

Hall effect absolute single turn encoder external magnet kit

Top Sensors Manufacture

DATASHEET - Rev.3 - 13062019

CHARACTERISTICS

- Angle Range: 0° to 360°
- Absolute measure
- Redundant sensors
- Linearity up to ±0.5°
- Aluminum anodized housing
- Miniaturized dimensions ø 40 x 8 mm
- High protection level IP67

ADVANTAGES

- Compact design
- HALL Effect technology
- High life time
- High accuracy at economic prices
- Different types of connection
- Many parameters configurable by CANopen (Offset, Counting direction, angle range 0°-360° or ±180°)

IP67 — High protection level

Shock/vibration resistant

Redundancy output

Reverse polarity protection

°C -40...+85 — Wide range temperature

CANopen — CANopen output

Cost saving

SIL2 PLd — Functional safety

RoHS compliant — Directive 2011/65/EU

CE — EU conformity

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PRODUCT DESCRIPTION

RTP100 (ø 40 mm) is a contact-less magnetic absolute encoder series featuring high operation speed employed in harsh environments such as, automation and process control fields.

Can Open redundant output is available, as well as anodized aluminum body material.

RTP100 provide a unique digital code for each distinct angle storing the value of the actual position and, therefore, preventing the loss of information in case of restart of the system or power-loss.
The operating principle of single-turn encoders is magnetic, suitable for industries where elevated speed, IP protection sealing and excellent wear and temperature resistance are needed.

PRODUCT CODE

RTP100. [a]_. [b]2. [c]360. [d]__. [e]_. [f]_

ORDER CODE

a	Counting direction
1	= CH1 & CH2 = CW
2	= CH1 & CH2 = CCW
3	= CH1 = CW, CH2 = CCW *
4	= CH1 = CCW, CH2 = CW

b	Power supply
2	= 9 ... 30 V DC

c	Angle degree
360	= 360°

d	Output
6	= CANopen redundant*
28	= CANopen SIL2-Pld

e	Type of connection
1	= Male connector M12x5, PUR cable 30cm *
13	= Deutsch DT04-6P, PUR cable 30cm
20	= Deutsch DT04-4P, PUR cable 30cm

f	Type of magnet
0	= Custom
1	= Rotor STD *
2	= Screw Magnet "M8, SW13"
3	= Magnet 10 x 2 mm

* TSM standard

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TECHNICAL SPECIFICATION

Measuring range	0 ... 360°
Resolution	0.01° (settable 1° - 0.1° - 0.01°)
Linearity	±0.5°
Housing Anodized aluminum	ø 40 x 8 mm
Protection	IP67
Temperature drift	100 ppm/K
Temperature range	-40°C ... +85°C [-40°F ...+185°F]
Weight	approx. 50 g [1.76 oz]
Shock resistance	acc. to CEI EN 60068-2-27
Vibration resistance	acc. to CEI EN 60068-2-6:2009

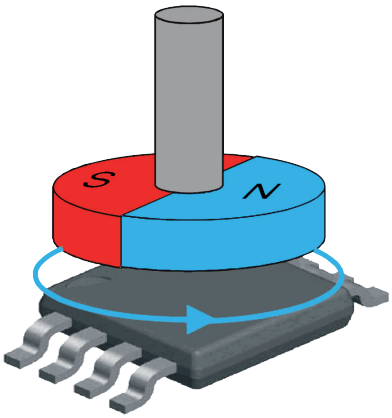
ELECTRICAL CHARACTERISTICS

Power supply	9 ... 30 V DC
Interface	CANopen
Profile conformity	CiA DS301
Electromagnetic compatibility	acc. to EN 61326-3-1(2017), EN 61326-1(2013) The electromagnetic environment envisaged for the use of the test equipment is: industrial electromagnetic environment
CE compliant	acc. to EMC guideline 2014/30/EU RoHS guideline 2011/65/EU

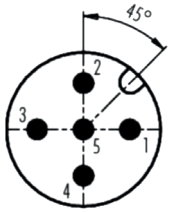
OPERATING PRINCIPLE

HALL effect

the production of a potential difference across an electrical conductor when a magnetic field is applied in a direction perpendicular to that of the flow of current.



ELECTRICAL CONNECTION M12 X 5 PINS

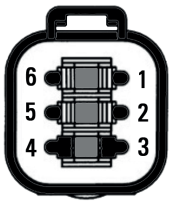


Pinout	
1	GND
2	+Vin
3	CAN-GND
4	CAN-H
5	CAN-L

ELECTRICAL CONNECTION DEUTSCH DT04-4P

Pinout	
1	CAN-L
2	CAN-H
3	+Vin
4	GND

ELECTRICAL CONNECTION DEUTSCH DT04-6P



Pinout	
1	GND
2	+Vin
3	n.c.
4	n.c.
5	CAN-L
6	CAN-H

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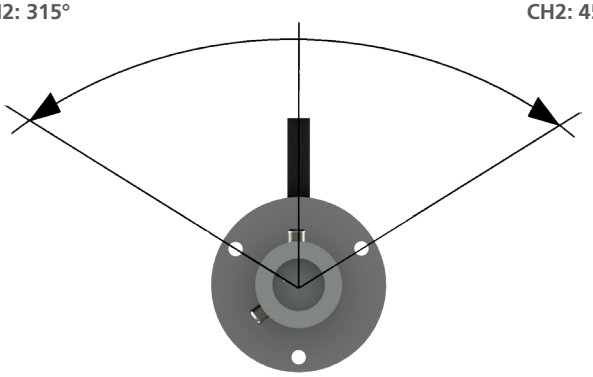
COUNTING DIRECTION (BOTTOM VIEW)

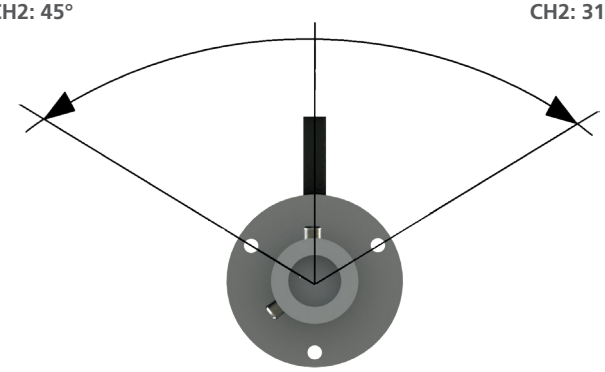
1] CH1 & CH2 = CW

CH1: 315° CH2: 315° | 0° | CH1: 45° CH2: 45°



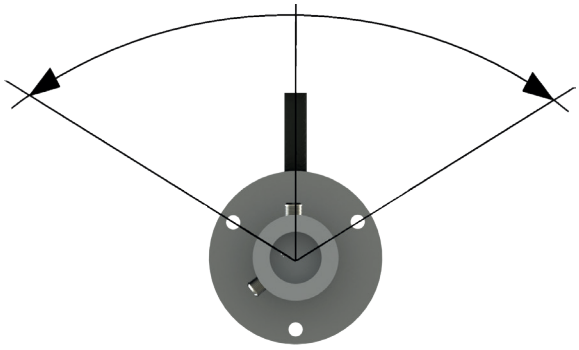
2] CH1 & CH2 = CCW

CH1: 45° CH2: 45° | 0° | CH1: 315° CH2: 315°



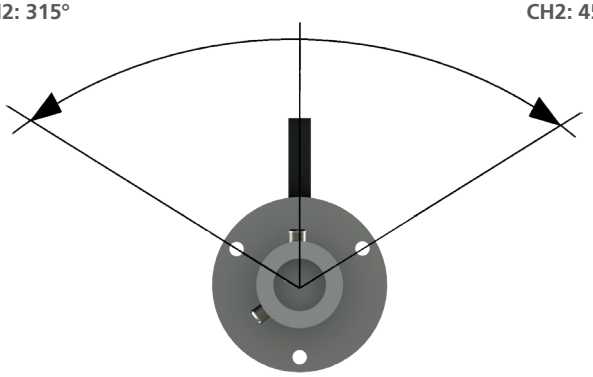
3] CH1 = CW, CH2 = CCW

CH1: 315° CH2: 45° | 0° | CH1: 45° CH2: 315°



4] CH1 = CCW, CH2 = CW

CH1: 45° CH2: 315° | 0° | CH1: 315° CH2: 45°



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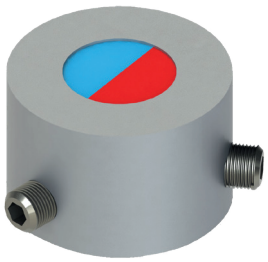
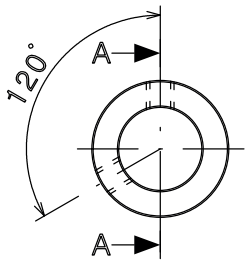
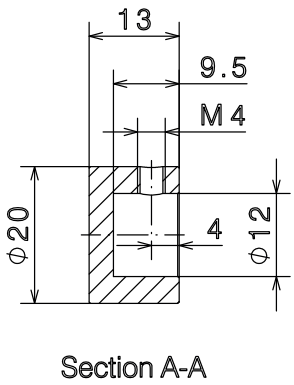
TYPE OF MAGNET [mm]

1] Rotor STD

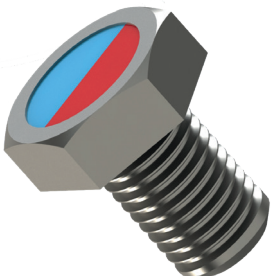


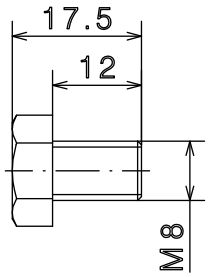


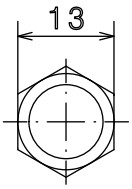


Recommended shaft ø 12 fix threaded x2 pin M4 (included in delivery)

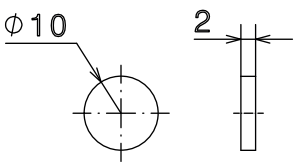
2] Screw magnet "M8, SW13"







3] Magnet 10 x 2 mm



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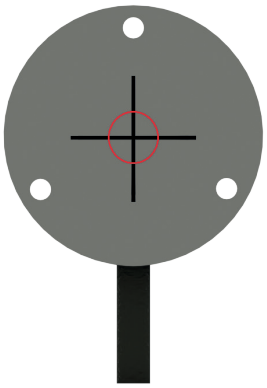
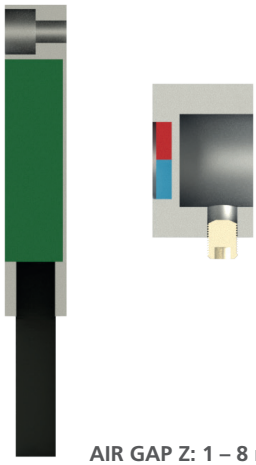
POSITION MAGNET TOLERANCES

Max radial X - Y misalignment: 1 mm



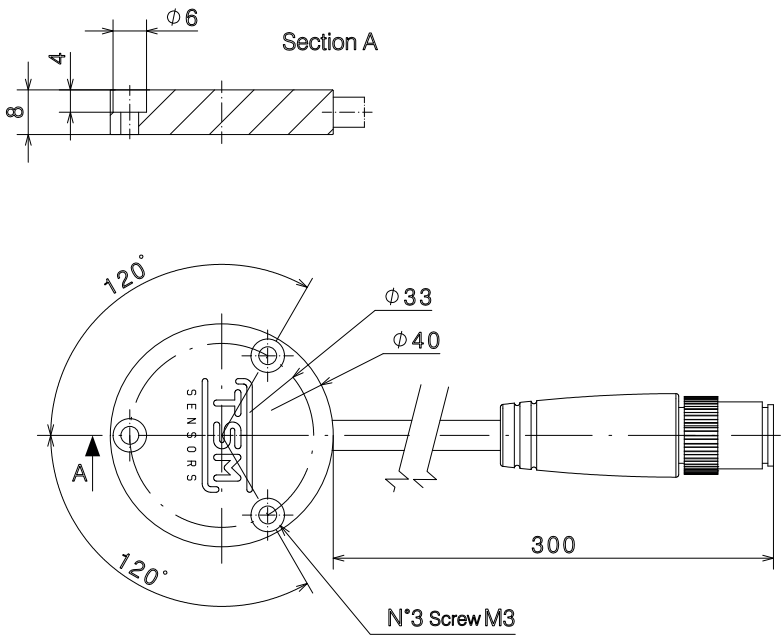
AIR GAP Z: 1 – 8 mm



AIR GAP Z: 1 – 8 mm

NOTE: each offset from the axis misalignment or magnetic, will increase the non-linearity.

DIMENSIONS [mm]



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