BTME Elektrotechnik

CANopen Absolute Single-and Multi-turn Encoder RNK-58/M58

Features and applications:

- Solid shaft or Blind hollow shaft up to ø15 mm
- Strong robustness with its reinforced bearing block and its stopped bearings
- Available resolution up to 16 bits
- Power supply from 10 to 30 Vdc
- Widely applied in a variety of industries



Model	RNA58J	RNA58T	RNA58H
Housing diameter	Ø 58mm	Ø 58mm	Ø 58mm
Shaft size	Solid with clamp flange Ø6/ 8/ 10/ 12/ 14/ 15 mm	Solid with synthro flange Ø6/ 8/ 10 mm	Blind hollow shaft Ø6/ 8/ 10/ 12/ 14/ 15 mm
Output signal	CANopen protocol		
Supply voltage	10....30Vdc		
Single-turn resolution	Standard 13 bits 8192, Max. 16 bits 65536		
Rotation turn no.	1 / 4096		
Code	Binary code		
Repeat-ability accuracy	±2BIT		
Current consumption	<50mA(at 24 Vdc) without load		
Max. speed	6000 r/min		
Shaft load	Radial 110N, axial 40N		
Protection class	IP65 or IP66		
Starting torque	≤3Ncm		
Operating temperature	-40°C....85°C		
Storage temperature	-40°C....100°C		
Shock resistance	1000m/s^2 , 6ms (100g)		
Vibration resistance	20g		
Connection type	Three-hole adapter terminal wiring		
Connection position	Radial		

Programmable parameters

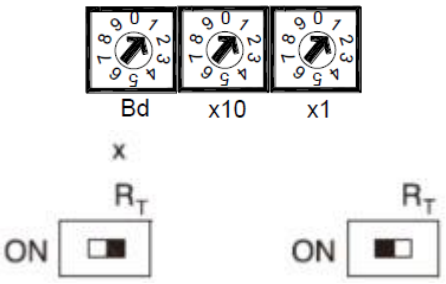
Operating parameters	The counting direction can be defined by the operation parameter, which determines the counting direction and whether the output code is increasing or decreasing.
Single-turn resolution	The resolution parameter can be programmed, and the resolution per revolution can be set as required.
Total resolution	This parameter value corresponds to the position value corresponding to the entire measurement length, and it cannot exceed the total resolution of the absolute encoder. In the normal mode, the settable value can only be a multiple of 2.
Preset value	This function is used to set the actual value of the absolute encoder to the desired position value.
Limit switch, min/max	The two positions can be programmed. If the measured value exceeds the range between these two values, the encoder will set one of the 32 bits high.

Programmable transfer mode

Query mode	The host obtains the current position data by remotely transmitting communication instructions, the absolute encoder reads the current position, calculates according to the set parameters, and then returns the actual value through the same CAN identification unit.
Cycle mode	The absolute value encoder transmits the current actual value cyclically, without the host issuing an instruction. This cycle time can be programmed and rewritten, between 1 and 65536ms, in milliseconds.
Sync mode	After the controller receives the synchronous signal, the encoder starts to transmit the current actual value. If multiple nodes respond to the synchronous signal, each node responds one by one according to the CAN recognizer. There is no programmable compensation time, and the synchronous counter can be programmed, so that the encoder does not transmit until a certain number of synchronization signals.

Configuration with connecting cap

When setting, remove the two screws to open the connection cap.



Baud rate

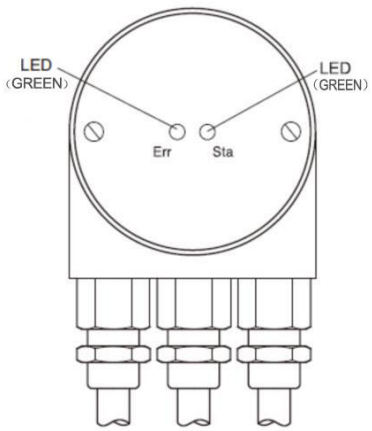
Baud rate	Switch position	Baud rate	Switch position
20	0	500	5
50	1	800	6
100	2	1000	7
125	3	Reserved	8
250	4	Set SDO and LSS mode	9

Node address

The node setting is completed by the 2 knob switches in the connecting

LED indicator

Two LEDs on the back of the connection cap to show the status of the device. Easy to installing and setting the encoder.



LED (red)	LED (green)	Definition
Dark	Dark	No power
Dark	light	Standby no transmission of message, no Other slave station, wrong baud rate

cap. The address range is from 0 to 89, and each address can only be assigned once. The node address number defined in the encoder is automatically +1.

Terminal resistance

The terminal resistance RT (120Ω) is integrated in the connection cap. If the encoder is connected to the end or start of the bus, the terminal resistance must be opened.

Flash	light	message can be transmitted device can be configured.
light	light	Normal working mode, the encoder is in working state.

Setting

The factory standard configuration of the encoder is: the node address is 32, the baud rate is 20KBaud, and the data transmission cycle time is 0ms (i.e, no cycle). For different applications, customers can use SDO messages to set. The effective baud rate ranges from 20kBaud to 1MBaud, the node number ranges from 0 to 89, and the cycle time ranges from 1ms to 65536ms.

Note: The encoder will automatically add 1 to the set node address number.

Electrical interface

The absolute rotary encoder with cable and plug interface is designed in accordance with the standardized CiA DR303-1 cable and plug protocol. There are various electrical connection options, such as 5-pin M12 plugs. The encoder can be connected in the following ways:

-5-pin M12 male plug and a 5-pin female plug

-5-pin M12 plug and vent

-9-pin D-Sub plug or cable outlet (not applicable to heavy-loaded version)

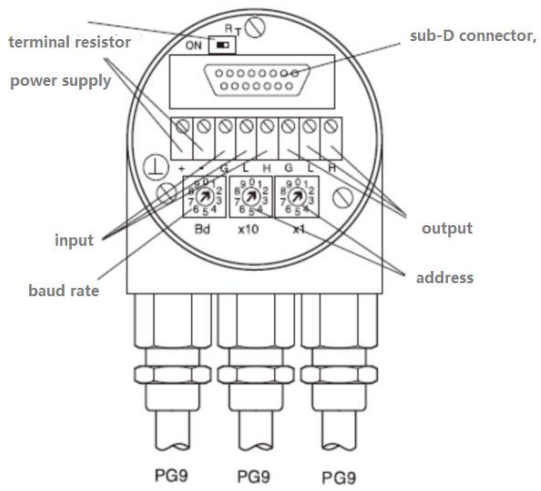
Electrical signal wiring table for plug/cable:

Connection plan

Function	Wire end	Connector Pin RJ45	Connector Pin M12
Can High	white	1	4
Can Low	brown	2	5
Can-GND	green	3	1
GND	yellow	4	3
+ U_b= 10-30 V	red	8	2

Mount the connection cap

Two or three cables is connected with rotary encoder. Such cable is bus cable or independent one. If power supply is integrated in the bus cable, the cable gland can be mounted through a plug. The cable gland is suitable for cables with a diameter of 6.5 to 9mm.



Function No.	Description
⊥	Grounding
+	10…30V power supply
-	0V power supply
G left	CAN grounding (bus in)
L left	CAN low (bus in)
H left	CAN high (bus in)
G right	CAN grounding (bus out)
L right	CAN low (bus out)
H right	CAN high (bus out)

Order Reference:

	1		2	3	4	5	6	7	8	9
	Single-	multi-	XXX	XXX	XX	XXX	X	X	XX	XX
	RNK58J	RNKM58J								
1. Spec.and series	RNK58T	RNKM58T								
	RNK58H	RNKM58H								

2. Output signal

CA	CANopen output	**CA**

3. Number of turns

B01	1	**B01**
B12	4096 12 bits	**B12**

4. Resolution per turn

12	12 bit（4096）ST	**12**
13	13 bit（8192）	**13**
14	14 bit（16384）	**14**
16	16 bit（65536）	**16**

5. Mechanical mounting dimension

For details, please refer to the order code for mechanical dimension of 58 series single-& multi-turn absolute encoder

6. Protection class and body material

0	Protection class IP65, Aluminum body	**0**
S	Protection class IP68, Aluminum body (work underwater available)	**S**
V	Protection class IP66, Stainless steel heavy-duty body	**V**
W	Protection class IP68, Stainless steel heavy-duty body (work underwater available)	**W**
H	Protection class IP66, Aluminum body for low Temp.	**H**

7. Connection postion

A	Axial	**A**
R	Radial	**R**

8.Connection type

A1	Cable Ø6.8mm, 8x2x0.35mm2 ,1m (ST)	**A1**
AC	Connector 8 pins	**AC**
AB	Connector M23	**AB**

9. EX explosion-proof

EX	**EX explosion-proof encoder EX II 2G Ex ib IIB T4 Gb**	**EX**