

Features and applications:

- Absolute Single- and multi-turn rotary encoder with solid shaft or blind hollow shaft
- Interface MODBUS-RTU Protocol
- Available resolution up to 16 bits
- Power supply from 5 to 30 Vdc
- Applied in highest industrial requirements



Model	PNK38-J/PNKM38-J	PNK38-T/PNKM38-T	PNK38-K/PNKM38-K
Housing diameter	Ø 38 mm		
Shaft diameter	Solid with clamp flange Ø 6 mm	Solid with synthro flange Ø 6 mm	Blind hollow shaft Ø4 / 5 / 6 / 8 mm
Output signal	MODBUS-RTU Protocol (angle, length and velocity output set available)		
Supply voltage	5....30 Vdc		
Resolution	12-bits 4096, 16-bits 65536 (set by PLC)		
Rotation turn no.	1 / 4096		
Accuracy	±2 bit		
Consumption	< 30mA (at 24Vdc) without load		
Max.speed	3000 r/min		
Shaft load	Radial 40N, Axial 20N		
Protection class	IP65 or IP68		
Starting torque	≤3 Ncm		
Operating Temp.	-25°C....85°C (<-40°C Special make)		
Storage temperature	-40°C....100°C		
Shock resistance	1000m/s ² , 6ms (100g)		
Vibration resistance	10 g		
Connection type	Cable or Connector		
Connection position	Radial / Axial		

Connection

Color	Brown	White	Pink	Black	Green	Yellow	Blue	Gray
Signal	Vcc	0V	4-20 mA+	4-20 mA -	Modbus-RTU A	Modbus-RTU B	Programmable Setting	Reset

Definition of Modbus communication protocol :

Baud: 4800bps. 9600bps. 19200bps. 38400bps. 115200bps. Frame format data: 8 bits, stop 1 Even parity, No control flow

a/ Format definition

Command word 03H: read parameter value

Host require: address command word parameter address data length slave check code response:
address command word byte length parameter value check code

Command word 04H: read parameter value

Host require : address command word parameter address data length slave check code response:
address command word byte length Data info. check code

Command word 10H: read parameter value

Host require : address command word parameter address data length byte length slave check code response:
address Command word byte length check code

b/ Communication protocol between host and slave computer

Each frame data sent by host computer contain following info. (hexadecimal) address of slave computer
command word info.byte check code

Address of slave computer(1 byte) Host computer can identify slave computer by its address. Slave computer can receive message from Host computer by address set by customer. Each slave computer has its sole address code within one Modbus net. Each slave computer can only response with correct address code

Command word (1 byte): host computer send function code informing slave computer execution instruction

Info. Word (N bytes) contain various of data address/data length/data info.for comm. between two computers

Check code (2 bytes) for testing data communication error, by adopting cycle redundancy CRC16 check

Use of reset(Gray): connect gray wire with power supply 24V for 3~5 seconds. Remove gray wire and encoder can be set at Zero position

Use of Programmable set (Blue): at setting mode: combine blue wire and brown wire and connect power supply 24V, connect white wire with ground wire, by this time, communication baud is fixed at 19200bps.

At no-setting mode: normal working condition, Suggesting connect blue wire and white wire with ground wire.

Order Reference:

	1	2	3	4	5	6	7	8
	PNK38/ PNKM38 -	XXX	XXX	XX	XXX	X	X	XX
1. Spec. and Series	Single-turn PNK38J PNK38T PNK38K	Multi-turn PNKM38J PNKM38T PNKM38K						
2. Output signal	PML Modbus-RTU and 4-20mA PM Modbus-RTU		PML PM					
3. Number of turns	B01 1 B02 4096		B01 B02					
4. Resolution per turn	12 12 bit (4096) ST 16 16 bit (65536)			12 16				
5. Mechanical mounting dimension	For details, refer to the mechanical dimension ordering code of RNK38 single-& multi-turn absolute encoder							
6. Protection class and body material	0 Protection class IP65, Aluminum body					0		
7. Connection position							A Axial R Radial	A R
8. Connection type	A1 Cable Ø6.8mm, 8x2x0.35mm ² , 1m (ST) AC Connector 8 pins							A1 AC