Absolute Rotary Encoder GDS60---SBB User Manual (binary code)

- A "photoelectric detection mode", with excellent impact and vibration resistance.
- Wide operating voltage, low current consumption.
- Clamping flange, servo flange or blind hollow shaft, the international standard structure.

★Please totally read the following instruction first for proper use of encoder.

Mechanical spec.		Electrical spec.	
Max. speed	6000 RPM	Power supply	10-30Vdc (5Vdc optional)
Shaft load	Axial 40N, radial 100N	Current consumption	< 50mA (24Vdc)no-load
impact	1000m/s²(6ms),about 100g	output	18-bit SSI synchronous serial signal (binary)
Anti-vibration	200m/s²(10-2000Hz) about 20g	resolution	1/262144FS
Allow axial jump	±1.5mm	IP	IP65 或 IP68
Allow radial jump	±0.2mm	accuracy	0.01°
structure	60mm outer diameter, solid shaft, or hollow shaft	Operating temp.	-40℃~100℃
Connection Type	6-core shielded cable or aviation connector	Storage temp.	-40℃~85℃

Reliable and patented

- Rugged bearing structure with safety lock design provides higher anti-vibration and anti-installation error
- IP68 protection grade and wide working temperature range -40℃...+85℃
- With permanent power-off memory function

Performance optimization

- High precision, data refresh rate of position data ≤4us
- High-resolution feedback via RS422
- The control period is short. Clock frequency up to 1MHz
- International standard SSI signal format

Output Interface: (Refer to product manual)

Wire	Signal
Brown	10-30Vdc or 5V
White	0V GND
Blue	DIR
Black	MID P
Green	CLOCK+
Yellow	CLOCK-
Gray	DATA+
Pink	DATA-

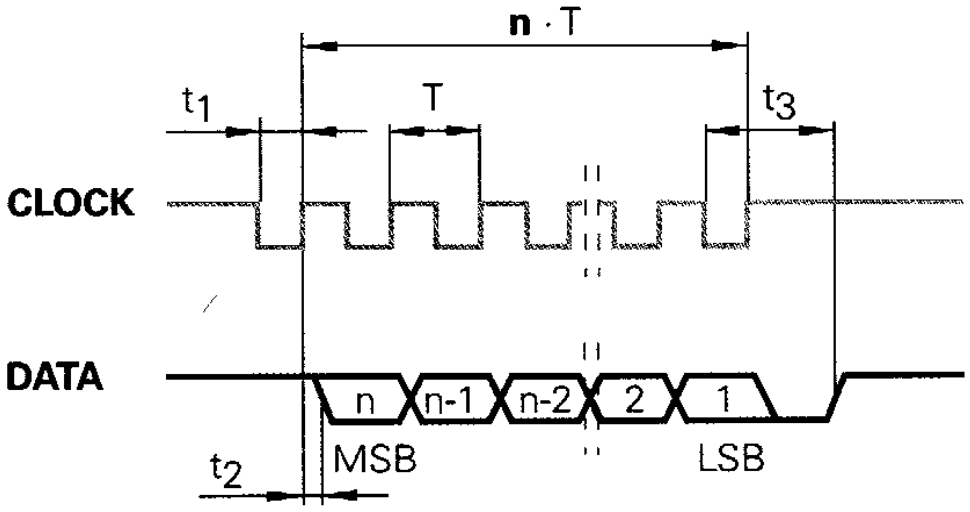
DIR --- rotation direction. When the core wire is low, top view of the shaft clockwise to incrGDSe data. When working power plus high, change of direction is counterclockwise to incrGDSe data;

MID P --- Zero point positioning. When the core wire with high level short contact , the current position data output is the zero point of the whole data ; When working properly, it should connected to 0V.

Clock/Data--- four- wire RS422 mode, ± 5V, one pair of clock trigger, a pair of data output.

SSI protocol description:

SSI is a synchronous serial signal, two pairs of RS422, one pair of clock trigger, a pair of data transmission.



As shown, the absolute position value of the encoder is triggered by clock signal of the receiving device, from the high bit of Gray code(MSB),output serial signal synchronized with clock signal. The clock signal sent from the receiving device, refer to the total number bits of the encoder, output N interrupt pulse. When the signal is not transmitted, the clock and data bits are high, at the first falling edge of the clock signal, storing the current value, from the rising edge of the clock signal, sending data signal, A clock pulse synchronization a data.

Wherein: t3 is the restore signal, waiting for the next transmission; N = 13; 16; 25; 28. (Total number of digits according to the encoder)

T = 4-11us; t1 = 1-5.5us; t2 ≤ 1us; t3 = 64us (Clock-and Date-omit not shown).

In actual use, in order to ensure the stability of the signal with the transmission distance farther, recommended the following parameters:

T = 8us (125KHz); t1 = 4us; t2 (the actual reading latency = 3 ~ 4us); t3 = 64us

Data processing:

The encoder output is a binary code that is decoded from a high bit into a binary code. In order to avoid abrupt change of working stroke data, it is recommended to use the middle position of the encoder data value as the starting position. When the encoder is installed, rotate it to the actual work start point, shorten the MIDP line of the encoder cable core to the power supply , The current signal output is the zero value of the total output value of the encoder, and the MIDP line returns to the power supply 0. After receiving the current mGDSured value into a binary code, should do the following:

The received binary code into an integer can be calculated directly.

Note:

Encoder is a precision instrument, do not knock, bump or drop encoders, especially in the shaft end, plGDSe gently, with care.

Guarantee encoder power supply in the range of 10 ~ 30Vdc and good isolation, to prevent large-scale activation of the electrical grid and the impact of the encoder.

In strong electromagnetic interference in the environment, to extend the signal lines should use the recommended special lines, such as right angle shielded cable.

Encoder signal lines should be done well grounded: close within two meters, the cable inside the shield should be grounded at both ends; greater distance, grounded metal enclosure encoder, the encoder comes with shielded cable shield unconnected, signal extension cable shielding receiving end single-grounded; if the signal cable longer or outdoor use, should signal cable sleeve metallic iron pipes and metal pipes grounded at its ends.

SSI signal line is band voltage, the signal should be used to prevent short-circuiting or short-circuited the power supply; prohibit hot plug, ensure that the cable is energized each wire on simultaneously. Encoder must be powered down no static soldering or connection, or connect the 0V

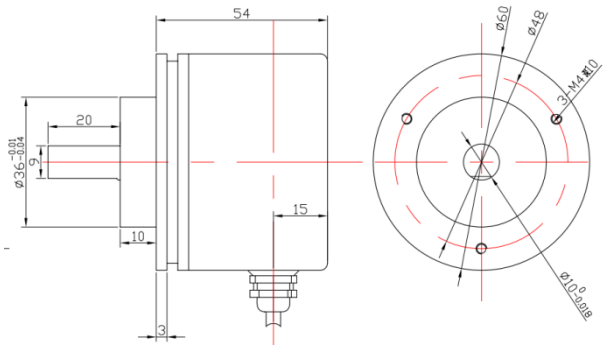
line before welding; cable, do not pull the cable violently.

Encoder protection class IP65, waterproof to use, but the encoder shaft at the Do not flooded.

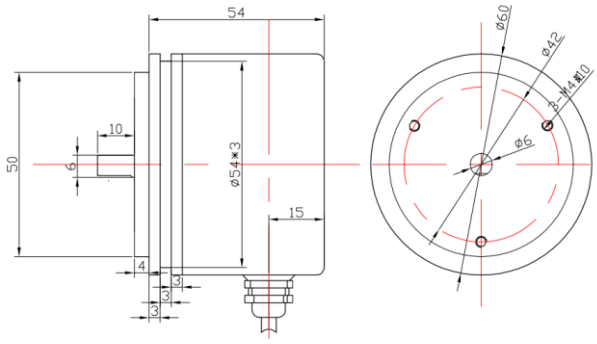
Encoder shaft and mechanical connections should use a dedicated flexible coupling.

Installation dimensions (Unit: mm)

a. Clamping & synchro flange(default)



b. Synchro flange



C. Hollow shaft