Single-Turn Absolute Rotary Encoder

Housing Dia.:38,50,58mm; Solid Shaft Dia.:6,8,10mm;
Interface: Modbus; Resolution: Max.16bits

GSA-M Series

▶Housing Diameter:38,50,58mm;
▶Solid/hollow Shaft Diameter:6,8,10mm;
▶Interface: Modbus;
▶Resolution: Single turn max.16bits;
▶Supply Voltage:5v,8-29v;
▶Output Code: Binary, Gray, Gray Excess, BCD;
▶Widely used in various fields of automatic control and measurement system,such as machinery manufacturing, shipping, textile, printing, aviation, military industry Testing machine, elevator, etc.
▶Vibration-resistant, corrosion-resistant, pollution-resistant;

Product characteristics				
Housing Dia.:	38,50,58mm			
Solid Shaft Dia.:	6,8,10mm			
Electrical Data				
Resolution:	Single turn max.16bits			
Interface:	Modbus			
Output Format:	NPN/PNP open collector, Push pull, Line Driver;			
Supply Voltage:	8-29V			
Max. Frequency Response	300Khz			
	Open Collector	**Voltage Output**	**Line Driver**	**Push Pull**
Consumption current	≤80mA;	≤80mA;	≤150mA;	≤80mA;
Load current	40mA;	40mA;	60mA;	40mA;
VOH	Min.Vcc x 70%;	Min.Vcc - 2.5v	Min.3.4v	Min.Vcc - 1.5v
VOL	Max.0.4v	Max.0.4v	Max.0.4v	Max.0.8v
Mechanical Data				
Start Torque	4 x 10^{-3} N•M			
Max. Shaft Loading	Axial: 29.4N, Radial:19,6N;			
Max. Rotary Speed	3000rpm			
Weight	160-200g			
Environment Data				
Working Temp.	-30~80℃			
Storage Temp.	-40~80℃			
Protection Grade	IP54			

Main Introduction

♦ **Transmission Interface**：RS-485. **Add**：1～254.（**Default to be 01**）

♦ **Baud Rate**：4800，**9600（Default）**，19200，38400. **Communication**

♦ **Medium**：STP.

♦ **Date Frame Format**：1 start bit，8 Data bit，1 Even Parity bit, 1 stop bit，Non-control flow.

Message Format:

1.Command word(CW) 03H：Read Location Value

Master Request(MASTRQ)：Address | Command Word | Parameter Address | Data Length | Check Code

Slave Response：Address | Command Word | Byte Length | Parameter Values | Check Code

2.**Command word(CW) 10H**：Preset Current Position Value

Master Request(MASTRQ)：Address **|** Command Word **|** Parameter Address **|** Data Length **|** Byte Length **|** Parameter Values **|** Check Code

Slave Response：Address **|** Command Word **|** Parameter Address **|** Data Length | Check Code

3.**Command word(CW) 06H**：Write Parameter Value

Master Request(MASTRQ)：Address **|** Command Word **|** Parameter Address **|** Parameter Value| Check Code

Slave Response：Address **|** Command Word **|** Parameter Address **|** Parameter Value | Check Code

Read Location Value：

Master Query Location Value：**01H 03H 00H 00H 00H 02H C4H 0BH**

Note：**01H**-Adress **|** **03H**-Command Word **|** **00H 00H**-Register Address **|** 0H 02H-Data Length（Unit:Word）**|** C4H 0BH- CRC Check

Slave Response： **01H 03H 04H 01H F4H 00H 01H 7BH FDH**

Note：**01H**-Adress **|** **03H**-Command Word **|** 04H Data Length（Unit: Byte）| 01H F4H 00H 01H-Location Data | 7BH FDH- CRC Check

Parameter Setting (Take effect after re power up)：

Parameter Sheet：

Hexadecimal	Parameter	Hexadecimal	Parameter
01	4800bps Baud Rate	05	115200Bps
02	9600bps Baud Rate	00	Clockwise: Data Increase
03	19200bps Baud Rate	01	Anticlockwise: Data Decrease
04	38400bps Baud Rate		

Note:(1).Register Address 0044H, Length 0001H, Data High Byte Fixed to be 00H，Low Byte to be Changed ID；

(2).Register Address 0045H, Length 0001H, Data High Byte Fixed to be 00H，Low Byte to be Baud Rate；

(3).Register Address 0046H, Length 0001H, Data High Byte Fixed to be 00H，Low Byte be Counting Direction;

(4).Register Address 004AH, Length 0002H, Four bytes from High to low be Current preset Location Value（Note not to Exceed physical position limit）；

Parameter Changing Example：

a . Change ID（01H　02H）：

Master Send：**01H 06H 00H 44H 00H 02H 48H 1EH**

Slave Response：**02H 06H 00H 44H 00H 02H 48H 2DH**

Note：01H-address | 06H-command word | 00H 44H-Rigester Address | 00H 02H-Data | 48H 1EH-CRC Check(48H 2DH-CRC Check)

b. Change Baud Rate (BR change to be 04H-38400bps)：

Master Send：**01H 06H 00H 45H 00H 04H 99H DCH**

Slave Response：**01H 06H 00H 45H 00H 04H 99H DCH**

Note：01H-Address|06H-Command Word|00H 45H-Register Address|00H 04H-Data|99H DCH- CRC Check

c．Change Counting Direction (Counting Direction 01H-Anti-clockwise，Current Location Value Must Be set After Change)

Master send：**01H 06H 00H 46H 00H 01H A9H DFH**

Slave Response：**01H 06H 00H 46H 00H 01H A9H DFH**

Note：01H-address|06H-command word|00H 46H-Register Address|00H 01H-Data|A9H DFH- CRC Check

d. Set Current Position Value(current position Value change to be 00000000H)

Master Send：**01H 10H 00H 4AH 00H 02H 04H 00H 00H 00H 00H 77H E0H**

Note：01H-address|10H-command word|00H 4AH-register address|00H 02H-data length（Unit:Word）|04H-Data Length（Unit:Byte）|00H 00H 00H 00H-Data|77H

B5H- CRC Check

Slave Response：**01H 10H 00H 4AH 00H 02H 60H 1EH**

Note：01H-address|10H-command word|00H 4AH-register address|00H 02H-data length（Unit:Word）A0H DCH-CRC ChecL

Ordering Code

Single Turn Absolute Encoder

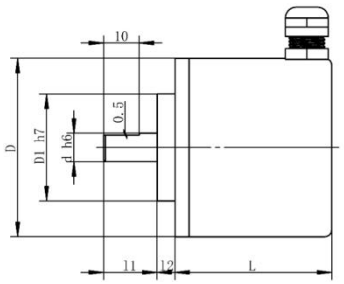
GSA-□ □□ -□□- □□□□□ □ □□□ □ -XXXX

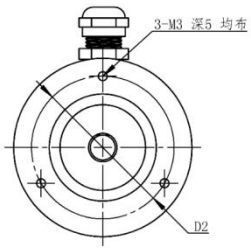
- SA: Single-turn Absolute Encoder
- S: Solid Shaft; H: Hollow Shaft;
- Housing Dia.
- Shaft/Hole Dia.
- Resolution
- Output Code: B:Binary; G:Gray; E:Gray excess; D:BCD;
- Working Voltage: 1:5v;2:12v;3:24v 4:8-36v
- Output Format:

R:Parallel	C:NPN Open Collector□
	U:PNP Open Collector;
	L:Line Driver□
	E:Voltage Output□
	P:Push Pull;
S:SSI;	D:DeciceNet;
C:CANopen;	PN:Profinet;
P:Profibus-DP;	E:EtherCAT
M:Modbus;	

- Output Logics P: Positive; N:Negitive
- Customizing as per request

Dimensions





D	38	50	58
d	6	8	10
D1	20	30	36
D2	30	40	48
L	35	35	44
11	15	15	20
12	5	5	10