

Multi-Turn Absolute Rotary Encoder

Housing Dia.:58mm; Solid Shaft Dia.:10mm;

Interface: Modbus; Resolution: Max.16bits, Single turn max.16bits, Total Max.29bits

GMA-M Series



- ▶ Housing Diameter:58mm;
- ▶ Solid/hollow Shaft Diameter:10mm;
- ▶ Interface: Modbus;
- ▶ Resolution: Max.16bits, Single turn max.16bits, Total Max.29bits;
- ▶ 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.:	58mm
Solid Shaft Dia.:	10mm

Electrical Data

Resolution:	Max.16bits, Single turn max.16bits, Total Max.29bits
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-Address | 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-Address | 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-Register 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 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

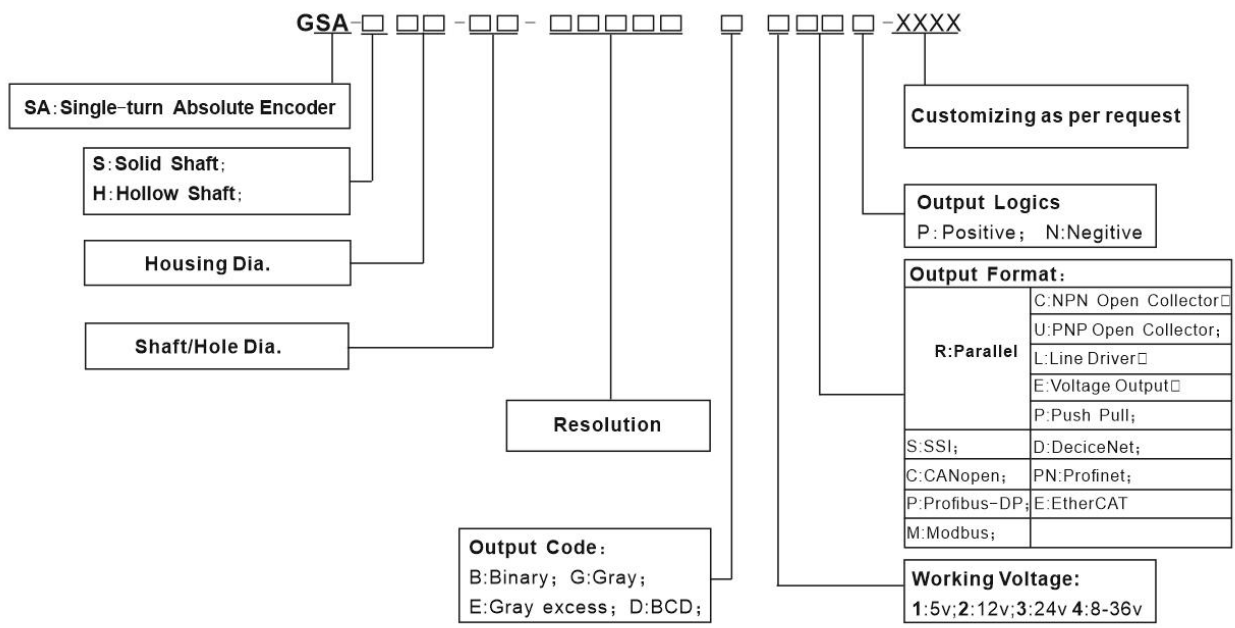
B5H- CRC Check

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 Check

Ordering Code

Single Turn Absolute Encoder



Dimensions

