Absolute Encoder CAS38---VB User Manual

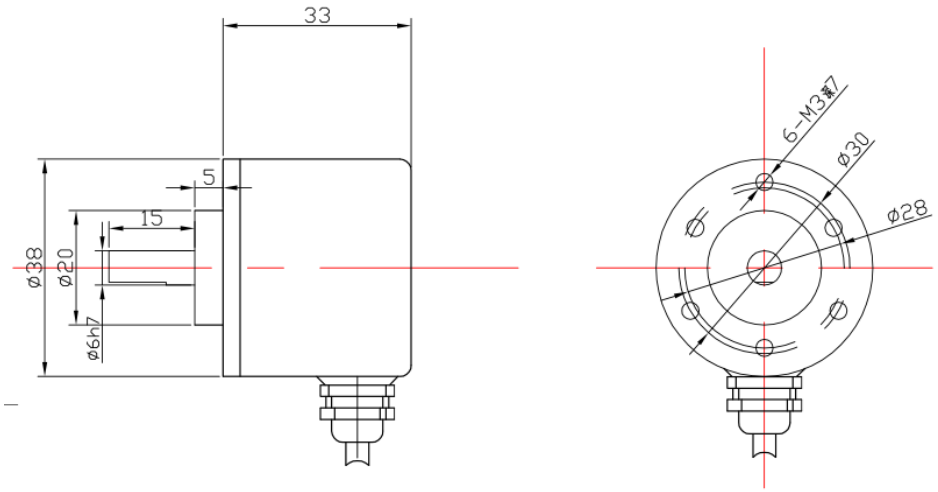
Parameter

Operating Voltage	10-30Vdc polarity protection
Current Consumption	< 110mA (24V power supply) no load
Output Signal	RS485 and 0-10V dual independent output, you can set the length, angle, speed application output
Output load capacity	≤ 400 ohms, the standard 200-250 Ohm work
Linearity Resolution	1/4096
Operating Temperature	-25—80℃ Programming temperature range：0℃～＋70℃
Storage Temperature	-40—80℃
Protection class	IP67 for housing IP65 for shaft
Vibration & shock	20g，10～2000Hz；100g，6ms
Permissible Rotation Rate	2400rpm
Output refresh cycle	<1.4ms
Connection Cable	1m 8-core shielded cable.
Overall Feature	Clamping flange or synchronous flange, metal enclosure, sealed dual-bearing structure (see attached drawing of overall dimension)
Shaft	Clamping flange shaft diameter 10mm, length 20mm, with D-flat, stainless steel, synchro flange shaft 6mm, length 10mm
Signal Conditioning	Can 0V output trim, 10V output trim; direction can be set; preset position, external set, such as external zero

Connection

Cable Output	
Cable Color	Signal Output
Brown	10—30Vdc Operating Voltage
White	0V GND
Green	RS485 Output A
Yellow	RS485 Output B
Pink	0-10V+
Black	0-10V-
Blue	Programming permitted line
Gray	External Reset line

Installation dimensions (Unit: mm)



Explanation: The horizontal axis represents the speed or the length (customizable), and the ordinate indicates the analog signal output

Custom RS485 communication protocol description:

Baud Rate: 4800bps 9600bps 19200bps 38400bps 115200bps.

Frame format: 8 data bits, 1 stop bit, no parity, no flow control.

The parameter of encoders is set by software instruction.

When the encoder is in active mode, That is the encoder automatically sends data to the host. Data length is 16 hexadecimal ASCII code format is: XAB> ± DATA ↙, as follow:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
X	address		>	±	DATA										↙

Wherein, "X" is the leading letters,">" is delimiters, "±" is the sign bit; "DATA" is the data, ASCII format, 10, from 0 to 9 constitute the range of -9,999,999,999 ~ +9,999,999,999. "↙" is carriage return (0D).

When the encoder is in passive mode, That is quiz mode. Host send inquiry instruction to the encoder, the instruction is four hexadecimal ASCII code format is: D + AB ↙.

"AB" is encoder address, range is 0~99.

1. Read data:

Host send: D + Address +0 D

Encoder return: X + address +> + sign + DATA+0 D

Example: Host sends 44 30 31 0D

Encoder return: 58 30 31 3E 2B 30 30 30 30 30 30 30 31 32 33 0D

2. Read parameters: (When blue wire connected high, is available)

Host sends: D +00 + A +0 D

Encoder return: X + address + a + direction + baud rate+ working condition + working mode +0 D

Example: Host sends: 44 00 41 0D

Encoder return: 58 30 31 61 06 03 11 09 0D

(Encoder address 01, clockwise to increase data value，baud rate 19200, reciprocating mode, passive mode)

3. Set Address: (When blue wire connected high, is available)

Host sends: D + address + B + new address +0 D

Encoder return: X + address + b + new address +0 D

Example: Host sends: 44 30 30 42 30 31 0D

Encoder return: 58 30 30 62 30 31 0D

(Modify the encoder address 00 to 01)

4. Setting direction: (When blue wire connected high, is available)

Host sends: D + address + C + new direction +0 D

Encoder return: X + address + c + +0 D new direction

Example: Host sends: 44 30 31 43 07 0D

Encoder return: 58 30 31 63 07 0D

(The CW to CCW)

5. Set the baud rate: (When blue wire connected high, is available)

Host sends: D + address + E + new baud +0 D

Encoder return: X + address + e + new baud +0 D

Example: Host sends: 44 30 31 45 03 0D
Encoder return: 58 30 31 65 03 0D
(Baud rate to 19200)

6. Set each circle Resolution: (When blue wire connected high, is available)

Host sends: D + Address + F + Resolution +0 D
Encoder return: X + address + f + resolution +0 D
Example: Host sends: 44 30 31 46 30 30 33 36 30 30 0D
Encoder return: 58 30 31 66 30 30 33 36 30 30 0D
(Set the resolution to 3600)

7. Set Passive Mode: (When blue wire connected high, is available)

Host sends: D + address + I + mode +0 D
Encoder return: X + address + i + mode +0 D
Example: Host sends: 44 30 31 49 09 0D
Encoder return: 58 30 31 69 09 0D
(Set to quiz mode)

8. Set the presetting value: (When blue wire connected high, is available)

Host sends: D + address + J + preset value +0 D
Encoder return: X + address + j + preset value +0 D
Example: Host sends: 44 30 31 4A 30 30 30 30 30 30 30 30 30 30 0D
Encoder return: 58 30 31 6A 30 30 30 30 30 30 30 30 30 30 0D
(Set presetting value to 0)

9. Set 0V corresponding values : (When blue wire connected high, is available)

Host sends: D + address + G+ corresponding values +0 D
Encoder return: X + address + g+ corresponding values +0 D
Example: Host sends: 44 30 31 47 30 30 30 30 30 30 30 30 30 30 0D
Encoder return: 58 30 31 67 30 30 30 30 30 30 30 30 30 30 0D
(Set 0V corresponding value to 0)

10. Set 10V corresponding values : (When blue wire connected high, is available)

Host sends: D + address + H + corresponding value +0 D
Encoder return: X + address + h + +0 D corresponding values
Example: Host sends: 44 30 31 48 30 30 30 30 31 30 30 30 30 30 0D
Encoder return: 58 30 31 68 30 30 30 30 31 30 30 30 30 30 0D
(Set 10V corresponding value 100000)

11. Set 10V Fine-turning: (When blue wire connected high, is available)

Host sends: D + address + K + sign bit + trim value +0 D
Encoder return: X + address + K + sign bit + trim value +0 D
Example: Host sends: 44 30 31 4B 2B 30 30 30 30 30 30 0D
Encoder return: 58 30 31 6B 2B 30 30 30 33 36 30 0D

12. Set 0V Fine-turning: (When blue wire connected high, is available)

Host sends: D + address + Q + sign bit + trim value +0 D
Encoder return: X + address + q + sign bit + trim value +0 D
Example: Host sends: 44 30 31 51 2B 30 30 30 30 30 30 0D
Encoder return: 58 30 31 71 2B 30 30 30 30 30 30 0D

13. Encoder reset instruction: (When blue wire connected high, is available)

Host sends: D + address + L + M + sum parity +0 D
Encoder return: X + address + l + m +sum parity +0 D
Example: Host sends: 44 30 31 4C 4D sum verify 0D
Encoder return： 58 30 31 6C 6D sum check 0D
(The current position is reset to the default preset values)

14. Setting the operating mode: **(When blue wire connected high, is available)**

Host sends: D + address + N + mode +0 D mode
Encoder return: X + address + n + +0 D mode
Example: Host sends: 44 30 31 4E 11 0D
Encoder return: 58 30 31 6E 11 0D
(Working mode set: 10 is loop mode, 11 is reciprocating mode.)

15. Set reciprocating max value: (When blue wire connected high, is available)

Host sends: D + address + O + H + max value +0 D
Encoder return: X + address + o + H + max value+0 D
Example: Host sends: 44 30 31 4F 48 30 30 30 30 31 30 30 30 30 30 0D
Encoder return: 58 30 31 6E 48 30 30 30 30 31 30 30 30 30 30 0D
(Set max value to 100000)

16. Sets the maximum value of the loop: (When blue wire connected high, is available)

Host sends: D + address + P + L + max value +0 D
Encoder return: X + address + p + L + max value +0 D
Example: Host sends: 44 30 31 50 4C 30 30 30 30 31 30 30 30 30 30 0D
Encoder return: 58 30 31 70 4C 30 30 30 30 31 30 30 30 30 30 0D
(Set max value to 100000)

Parameters table:

ASCII 码	parameter	ASCII code	parameter
01	4800bps baud rate	07	CCW data increases
02	9600bps baud rate	08	Active mode
03	19200bps baud rate	09	passive mode
04	38400bps baud rate	10	Loop mode
05	115200bps baud rate	11	reciprocating mode
06	CW data increases		

Programming permitted line (blue wire) usage:

When setting mode, the blue wire and the brown wire connected together to the positive power supply, the white wire connected to power ground. In this case, the encoder communication speed is fixed to 19200bps.

When non-setting mode, that is work mode, we recommend the blue wire and the white line connected together to the power ground.