MX_CAN-SV3.03-1 Communication Protocol

Translated English Manual - CAN Extended Frame

English technical translation generated from the original Chinese source document. Hex values, register addresses, data types, timing values, and units are preserved.

1. Test Notes

• For multi-byte communication, the default order is high byte first and low byte second.

• CAN default timeout is 1.5 seconds. If the driver receives no data within this time, the motor stops.

• Items marked Optional must be requested in advance if the user requires that function.

2. Communication Protocol

2.1 CAN data bytes

Data0	Data1	Data2	Data3	Data4	Data5	Data6	Data7
Data 0	Data 1	Data 2	Data 3	Data 4	Data 5	Data 6	Data 7

2.2 Driver receive frame - default CAN parameters

ID (extended frame test)	Test interval	Data length	Baud rate
1801E600	100 ms	8 byte	500 k

Byte	Command name	Type / range	Unit	Remarks
Data0	Control word	Uint8 (0-255)		bit7: axis 1 torque/speed mode; bit6: axis 2 torque/speed mode; bit5-bit4 reserved; bit3 coast disable/enable (optional); bit2 reset disable/enable (optional); bit1-bit0 enable bits: 00 both disabled, 01 axis 2 enabled, 10 axis 1 enabled, 11 both enabled.
Data1	Axis 2 speed or torque high byte	Int16 (-30000 to 30000)	r/min or A	Positive: motor forward. Zero: motor stop. Negative: motor reverse.
Data2	Axis 2 speed or torque low byte	Int16	r/min or A	
Data3	Axis 2 acceleration/deceleration	Uint8 (0-255)		In speed mode: speed change per second, unit is 10 r/min. Example: 100 means 1000 r/min per second. In torque mode: current change per second, unit is A.
Data4	Axis 1 speed or torque high byte	Int16 (-30000 to 30000)	r/min or A	Positive: motor forward. Zero: motor stop. Negative: motor reverse.
Data5	Axis 1 speed or torque low byte	Int16	r/min or A	
Data6	Axis 1 acceleration/deceleration	Uint8 (0-255)		Same rule as Data3.
Data7	Reserved			Default value: 0

2.3 Driver transmit frame - extended data frame

ID (extended frame test)	Test interval	Data length	Baud rate
1801E001	100 ms	8 byte	500 k

Byte	Command name	Type	Unit	Remarks
Data0	Fault information	Uint8		See fault code table
Data1	Driver temperature	Uint8	deg C	
Data2	Axis 2 speed high byte	Int16 (-32768 to 32767)	r/min	Positive: forward; zero: stop; negative: reverse
Data3	Axis 2 speed low byte	Int16	r/min	
Data4	Axis 1 speed high byte	Int16 (-32768 to 32767)	r/min	Positive: forward; zero: stop; negative: reverse
Data5	Axis 1 speed low byte	Int16	r/min	
Data6	Power-supply voltage high byte	Uint16	0.1 V	
Data7	Power-supply voltage low byte	Uint16	0.1 V	

2.4 Host CAN transmit test codes (hex)

Condition	Data0	Data1	Data2	Data3	Data4	Data5	Data6	Data7
Motor1 and Motor2 enabled, speed mode	C3	00	32	64	00	32	64	00
Motor1 enabled, Motor2 disabled, speed mode	C2	00	32	64	00	32	64	00
Motor1 disabled, Motor2 enabled, speed mode	C1	00	32	64	00	32	64	00
Motor1 and Motor2 enabled, torque mode	03	00	14	64	00	14	64	00
Motor1 enabled, Motor2 disabled, torque mode	02	00	14	64	00	14	64	00
Motor1 disabled, Motor2 enabled, torque mode	01	00	14	64	00	14	64	00
Reset	04	00	00	64	00	00	64	00
Coast	08	00	00	64	00	00	64	00

3. Fault Code Table

Code	Definition	Code	Definition
0	Normal	1	Driver fault
5	Over-current	6	Over-voltage
7	Under-voltage	8	Over-temperature
11	Motor 2 over-speed	12	Motor 1 over-speed
13	Motor 2 overload	14	Motor 1 overload
15	Motor 2 phase loss	16	Motor 1 phase loss
17	Motor 2 phase short	18	Motor 1 phase short
19	Motor 2 encoder fault	20	Motor 1 encoder fault
21	Motor 2 over-temperature	22	Motor 1 over-temperature
23	Motor 2 Hall fault	24	Motor 1 Hall fault
25	Motor 2 stall	26	Motor 1 stall
27	UART communication fault	28	RS485 communication fault
29	CAN communication fault	30	Joystick fault
31	Throttle fault		