

Broadcast CAN protocol between KAC-8080I controller and Instrument

1、 Overview

This protocol defines the messages sent from motor controller for instrument via CAN Bus in the automobile net work.

2、 Normative reference

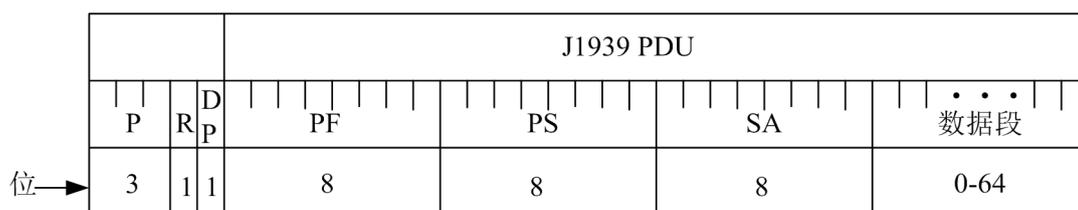
SAE J1939-21。

3、 Physical interface

This protocol supports CAN 2.0B standard,the baud rate is 250Kbps.The unused or reserved Byte is defined as 0x00 in the database.

4、 PDU Format(Protocol Date Unit)

There are two types of PDU format in SAE J1939-21.PDU1 Format(PS=Destination Address) and PDU2 Format(PS =Group Extension). PDU2 is a kind of transfer which doesn't specify a particular target address(The PDU2 Format can communicate CAN Data Frames that are not destination specific.).This protocol uses PDU2 Format.



Definition:P-Priority,R-Reserved,DP-Data page,PF-PDU Format, PS is particular PDU,SA-Source address

5、 Data Frame definition I

OUT	IN	ID	Communication period	Data		
Controller	Instrument	ID=10F8109A	50ms	Position	Data	Comment
				1Byte	Driving direction	Bit1-bit0 : 00--Neutral 01--Forward 10--Reverse Bit2-bit7 : reserved
		P R DP PF PS SA		2Byte	LSB of speed in	Motor RPM:

										RPM	1rpm/bit	
										3Byte	MSB of speed in RPM	
										4Byte	Error code	See Table 1
										5Byte	Reserved	
		4	0	0	248	16	154			6Byte	Reserved	
										7Byte	Reserved	
										8Byte	Reserved	

6、Data Frame definition II

OUT	IN	ID						Communication Period	Data		
Controller	Instrument	ID=10F8108D						50ms	Position	Data	Comment
									1Byte	LSB of battery voltage	0.1V/bit
									2Byte	MSB of battery voltage	
		P	R	DP	PF	PS	SA		3Byte	LSB of motor current	0.1A/bit
									4Byte	MSB of motor current	
									5Byte	LSB of motor temp	0.1°C/bit
									6Byte	MSB of motor temp	
		4	0	0	248	16	141		7Byte	LSB of controller temp	0.1°C/bit
									8Byte	MSB of controller temp	

Table 1: Error CODES

Beep sound Codes

Beep keeps sounding		<p>1. Software is still upgrading or identifying angle operation</p> <p>2. Throttle signal is higher than the preset 'dead zone' at Power On. Fault clears when throttle is released.</p>
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Beep sound Codes

Beep Code	Explanation	Solution
1,3	Overcurrent error	May be caused by some transient fault condition like a temporary over-current, momentarily high or low battery voltage. This can happen during normal operation.
1,4	Over temperature	The controller temperature has exceeded 100°C. The controller will be stopped but will restart when temperature falls below 80°C.
1,6	Hall galvanometer sensor error	Hall galvanometer device is damaged or defective inside the controller. This error code is only valid for KAC-8080I controller
1,7	Speed sensor error	Please check the wiring or connection of encoder of the motor The encoder sensor could be damaged
1,9	Low voltage error	The controller will clear after 5 seconds if battery volts returns to normal. If the voltage between B+ and B- is lower than the Low Voltage Setting, the controller will report this error code. Check battery volts & recharge if required.
1,10	Over voltage error	Battery voltage is too high for the controller. Check battery volts and configuration. Regeneration over-voltage. Controller will have cut back or stop regen. This only accurate to $\pm 2\%$ upon Overvoltage Setting.
1,11	Motor over-temperature	Motor temperature has exceeded the configured maximum. The controller will shut down until the motor temperature cools down
1,13	Acceleration throttle is malfunction	When the throttle is repaired, a restart will clear the fault. The choice of Throttle Type does not match the actual throttle you are using.