6.3   MCU Fault Code List

*Note: the fault code * is shutdown fault, the rest is power reduction alarm or warning*

Fault Code (BCD)	Fault name. *Fault handling*	Possible Reason	Remedy
1* (0x01)	BMS Error ------------------------ *Cut off the motor drive* *Cut off throttle response*	BMS Error	Switch KSI
2* (0x2)	KSI Voltage High Error ------------------------ *Cut off the motor drive* *Cut off throttle response*	KSI Voltage High Error	Switch KSI
11* (0x0B)	Motor Encoder Error ------------------------ *Cut off the motor drive* *Cut off throttle response*	Motor Encoder Error	Switch KSI
12* (0x0C)	Over Current ------------------------ *Cut off the motor drive* *Cut off throttle response*	1. The external U / V / W connection of the motor is short-circuited. 2. Motor parameters do not match. 3. MCU fails, and the current sensor is out of range. 4. Encoder signal is abnormal.	Switch KSI
13* (0x0D)	ADC Calib Fault ------------------------ *Cut off the motor drive* *Cut off throttle response*	1. U / V / W short circuit or short to the frame. 2. The MCU current sensor fails, or the MCU fails. 3. Bad current sensor wiring harness.	Switch KSI
14* (0x0E)	Precharge Failed ------------------------ *Cut off the motor drive* *Cut off throttle response*	1. Wrong wiring 2. Charging high-voltage fault 3. Pre-charge relay is damaged.	Switch KSI
15* (0x0F)	Under Temperature ------------------------ *Cut off the motor drive*	1. The MCU operating environment is too harsh. 2. MCU temperature sensor fails.	Switch KSI

	Cut off throttle response		
16* (0x10)	Over Temperature ------------------------ *Cut off the motor drive* *Cut off throttle response*	1. The MCU operating environment is too harsh. 2. The vehicle is overloaded or in electronic slope. 3. MCU is not properly installed. 4. MCU temperature sensor fails.	Switch KSI
17* (0x11)	Under Voltage ------------------------ *Cut off the motor drive* *Cut off throttle response*	1. Battery parameters, MCU rated voltage set wrong. 2. The battery impedance is too large. 3. Battery connection is disconnected while driving. 4. Fuses are disconnected, or the main contactor is not closed. 5. Seriously overloaded.	Switch KSI
18* (0x12)	Over Voltage ------------------------ *Cut off the motor drive* *Cut off throttle response*	1. Battery voltage reaches the overvoltage cut point. 2. The battery connection is disconnected during regenerative braking. 3. Battery parameter settings are incorrect. 4. Battery impedance is too high.	Switch KSI
19* (0x13)	DC Link Voltage Sensor Fault ------------------------ *Cut off the motor drive* *Cut off throttle response*	DC link voltage sensor sampling fault	
21 (0x15)	Under Voltage ------------------------ *Battery stop output*	1. Controller performance is limited. 2. Battery parameter settings are incorrect. 3. Non-controller system power consumption. 4. The battery impedance is too large. 5. Battery connection is disconnected while driving. 6. Fuses are disconnected, or the main contactor is not closed.	

22 (0x16)	Over Temp Cutback ------------------------ *Output cutback*	1. Controller performance is limited. 2. The controller operating environment is too harsh. 3. The vehicle is overloaded or in electronic slope. 4. Controller is not properly installed.	6-68
23 (0x17)	Under Voltage Cutback ------------------------ *Battery output cutback*	1. Controller performance is limited. 2. Battery parameter settings are incorrect. 3. Non-controller system power consumption. 4. The battery impedance is too large. 5. Battery connection is disconnected while driving. 6. Fuses are disconnected, or the main contactor is not closed.	
24 (0x18)	Over Voltage Cutback ------------------------ *Battery intput cutback*	1. Controller performance is limited. 2. The battery parameters are set incorrectly. 3. The battery parameters are set incorrectly. 4. The battery is disconnected when driving with feedback braking.	
25* (0x19)	BCH Driver Fault ------------------------ *Cut off the brake resistance control*	BCH Driver Fault	
26* (0x1A)	Motor Stall ------------------------ *Cut off the motor drive* *Cut off throttle response*	1. Motor stall 2. The phase sequence of the motor is connected incorrectly. 3. The encoder cable is connected incorrectly.	
27 (0x1B)	Motor Over Load Alarm ------------------------ *Cut off throttle response*	Motor load over the set value	

28 (0x1C)	Motor Over Temp Cutback ------------------------ *Motor output cutback*	1. The operating environment of the motor is too harsh. 2. The vehicle is overloaded or in electronic slope. 3. The motor temperature parameter setting is wrong. 4. The motor temperature sensor has failed.	6-69
29* (0x1D)	Motor Temp Sensor Fault ------------------------ *Motor stop output*	1. The motor temperature sensor is connected incorrectly. 2. The motor temperature sensor model is used incorrectly. 3. The motor temperature sensor has failed. 4. The temperature sampling circuit of the MCU fails.	
31* (0x1F)	Coil1 Driver Open/Short Main Open / Short ------------------------ *Cut off the motor drive Cut off throttle response*	1. Drive load open/short circuit. 2. The connection point is oxidized, melted, or the connection state is unstable. 3. Incorrect crimping or wrong wiring.	
32* (0x20)	Coil2 Driver Open/Short EMBrake Open / Short ------------------------ *Cut off the motor drive Cut off throttle response*	1. Drive load open/short circuit. 2. The connection point is oxidized, melted, or the connection state is unstable. 3. Incorrect crimping or wrong wiring	
33* (0x21)	DC Link Current Sensor ------------------------ *Cut off the motor drive Cut off throttle response*	DC link current sensor fault	

34* (0x22)	KSI Voltage Fault -------------- *Cut off the motor drive* *Cut off throttle response*	KSI key switch voltage is lower than the set value (default setting 30V)	
35* (0x23)	UVW Temp Diff Fault ----------------------- *Cut off the motor drive* *Cut off throttle response*	MOSFET UVW 3-phase temperature difference exceeds the set value (default is 35°C).	
36 (0x24)	Resolver Encoder Fault ----------------------- *Cut off the motor drive* *Cut off throttle response*	1. The resolver encoder fails. 2. The resolver connection fails. 3. The MCU resolver circuit fails.	
37* (0x25)	Motor Open ----------------------- *Cut off the motor drive* *Cut off throttle response*	1. The motor wiring is open. 2. The 3-phase current of the motor is unbalanced.	
38* (0x26)	Main Contactor Welded ----------------------- *Cut off the motor drive* *Cut off throttle response*	1. Main contactor welded 2. There are other channels to charge the controller capacitor.	
39* (0x27)	Main Contactor Did Not Close ----------------------- *Cut off the motor drive* *Cut off throttle response*	1. Main Contactor Did not close 2. The main contactor contacts are oxidized, melted, or connected in an unstable state. 3. An external load prevents the controller capacitor from charging. 4. Fuse is blown open.	
40 (0x28)	HandBrake Fault ----------------------- *Cut off throttle response*	The handbrake signal and the throttle signal are valid at the same time.	
41 (0x29)	Throttle Paddle High Fault ----------------------- *Cut off throttle response*	1. The throttle pedal input wiring is shorted to "+". 2. The potentiometer of the throttle pedal is faulty, short and high.	

		3. The throttle pedal type is set incorrectly.	6-71
42 (0x2A)	Throttle Paddle Low Fault ------------------------ *Cut off throttle response*	1. The throttle pedal input wiring is open. 2. The throttle pedal input wiring is shorted to "-". 3. The potentiometer of the throttle pedal is faulty, short ground. 4. The throttle pedal type is set incorrectly.	
43 (0x2B)	Brake Paddle Fault ------------------------ *Cut off throttle response*	The brake signal and the throttle signal are valid at the same time.	
44* (0x2C)	Motor Over Temp Fault ------------------------ *Cut off the motor drive* *Cut off throttle response*	The motor temperature exceeds the over-temperature setting value (default 150°C).	
45 (0x2D)	Throttle Not Match Fault ------------------------ *Cut off throttle response*	The throttle pedal does not match.	
46* (0x2E)	EEPROM Failure ------------------------ *Cut off the motor drive* *Cut off throttle response*	1. Failed to write to EEPROM storage. 2. Parameter change failure fault. 3. In order to ensure the safety of the vehicle, changes to specific parameters must take effect after the key switch is restarted.	
47 (0x2F)	HPD/SRO Fault ------------------------ *Cut off throttle response*	1. The key start, interlock, gear, and throttle pedal input sequence are set incorrectly. 2. Wiring, switch key, interlock, direction, or throttle pedal input fault. 3. When the key is turned on when the throttle pedal is steped, 4. The throttle pedal connector is in poor contact or the wiring is wrong.	

		5. The throttle pedal signal does not match the controller. 6. KSI interlock and throttle pedal input sequence is wrong. 7. The wrong HPD type is selected. 8. The throttle pedal potentiometer is out of adjustment. 9. The sequence delay is too short.	6-72
49* (0x31)	Parameter Change ------------------------ *Cut off the motor drive* *Cut off throttle response*	1. For safety reasons, the writing of specific parameters will make the vehicle unable to drive, and KSI needs to be switched on and off again. 2. Failed to write parameters.	
50 (0x32)	CanbinDoor Fault ------------------------ *Cut off throttle response*	The door signal and throttle signal are valid at the same time.	
51* (0x33)	MOS V Temp Sensor Fault ------------------------ *Cut off the motor drive* *Cut off throttle response*	MOSFET V Temperature Sensor Fault	
52 (0x34)	RC Thermal Protection ------------------------ *Controller current limit operation*	The controller has been overloaded for longer than the allowable time.	
53* (0x35)	Motor Short ------------------------ *Cut off the motor drive* *Cut off throttle response*	1. The motor insulation is poor. 2. The MCU is defective.	
54* (0x36)	+12V Supply Low Failure ------------------------ *Cut off the motor drive* *Cut off throttle response*	12V power supply is less than 9.5V and lasts for 3s	

55* (0x37)	+12V Supply High Failure ------------------------ *Cut off the motor drive* *Cut off throttle response*	12V power supply exceeds 16V and lasts for 3s	6-73
56* (0x38)	Board Over Temperature ------------------------ *Cut off the motor drive* *Cut off throttle response*	The temperature of the control board exceeds 100°C.	
57 (0x39)	BCH Temper Sensor Fault ------------------------ *Cut off braking resistor control*	BCH Temper Sensor Fault	
58* (0x3A)	MOS U Temp Sensor Fault ------------------------ *Cut off the motor drive* *Cut off throttle response*	MOSFET U Temperature Sensor Fault	
59* (0x3B)	MOS W Temp Sensor Fault ------------------------ *Cut off the motor drive* *Cut off throttle response*	MOSFET W Temperature Sensor Fault	
61 (0x3D)	Motor Under Load Alarm ------------------------ *Cut off throttle response*	Motor load is lower than the set value	
62 (0x3E)	Motor Over Speed Alarm ------------------------ *Cut off throttle response*	Motor speed exceeds the set value	
63 (0x3F)	CAN Communication Alarm ------------------------ *Cut off the motor drive*	In the VCU control mode, if the CAN communication fault exceeds 300ms, it means that the control command is received.	

	Cut off throttle response		6-74
64* (0x40)	W Current Sensor ----------------------- *Cut off the motor drive* *Cut off throttle response*	W phase current sensor fault	
65* (0x41)	V Current Sensor ----------------------- *Cut off the motor drive* *Cut off throttle response*	V phase current sensor fault	
66* (0x42)	U Current Sensor ----------------------- *Cut off the motor drive* *Cut off throttle response*	U phase current sensor fault	
67* (0x43)	Control Board 5V Fault ----------------------- *Cut off the motor drive* *Cut off throttle response*	The internal 5V power supply chip of the control board works abnormally.	
68 (0x44)	Gear Fault ----------------------- *Cut off throttle response*	D/R gear is valid at the same time.	
69 (0x45)	Charging Interlock Fault ----------------------- *Cut off throttle response*	When charging, there is a throttle signal.	
71* (0x47)	Motor Fly Fault ----------------------- *Cut off the motor drive* *Cut off throttle response*	1. The phase sequence of the motor is connected incorrectly. 2. The encoder cable is connected incorrectly. 3. The initial angle of the resolver position is wrong.	
72* (0x48)	CAN Communication Fault ----------------------- *Cut off the motor drive*	In VCU control mode, if the CAN communication fault exceeds 1s, the control command is received.	

	Cut off throttle response		
73 (0x49)	Stall Detected ------------------------ *Cut off the electromagnetic brake response*	1. The motor is blocked. 2. Incorrect crimping or wrong wiring.	
74 (0x4A)	Under Temperature Cutback ------------------------ *Cut off throttle response*	The MCU is derated at low temperature.	
75 (0x4B)	EMBrake Fail Set ------------------------ *Cut off EMB response*	Electromagnetic brake fault	
87* (0x57)	Motor Identification Fault ------------------------ *Cut off the motor drive* *Cut off throttle response*	The motor parameters are set incorrectly.	
88* (0x58)	Motor Over Speed Fault ------------------------ *Cut off throttle response*	The motor speed exceeds the set value (default 1.2 times of the maximum motor speed).	
89* (0x59)	Motor Type Error ------------------------ *Cut off the motor drive* *Cut off throttle response*	Motor type error.	
91* (0x5B)	Heatsink Over Temp Fault ------------------------ *Cut off the motor drive* *Cut off throttle response*	The temperature of the Heatsink exceeds the over-temperature setting value (default 65℃ for water cooling and 85℃ for air cooling).	
92 (0x5C)	Battery SOC Low ------------------------ *Pump control does not respond*	Battery is low	

93 (0x5D)	Safety Lock Lost -----------------------	Safety lock lost.	
94* (0x5E)	Cover Open Fault ----------------------- *Cut off the motor drive* *Cut off throttle response* *Cut off the main contactor*	1. The wiring cover is opened 2. The micro switch at the wiring cover is disconnected	
95 (0x5F)	DO High Volt Protection -----------------------	Braking resistor or fan control output port is shorted to high voltage	
99* (0x63)	Illegl Model Number ----------------------- *Cut off the motor drive* *Cut off throttle response*	1. The product model does not match the downloaded parameter or program. 2. The EE of MCU fails.	